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Dietary Consultation—A Service for Small Institutions

The Food and Nutrition Board of the National Research Council was organized some years ago to work toward the improvement of the nutrition of the people of the country. Of necessity, the efforts of the Board have taken many directions. Much of the work has been done primarily through committees appointed to cover the fields of outstanding nutritional needs. One of these fields is the dietary management in various institutions. Not only is it a matter of fairly common knowledge, but surveys have shown that many institutions have relatively poor dietary regimens. The majority of small hospitals and child-caring institutions have no dietitian and often persons in charge who have had no dietary training. Recognizing this situation, the Food and Nutrition Board appointed a Committee on Institutional Feeding.

This Committee faced the problem of finding means to improve the diets in those institutions that do not have proper dietary supervision. Small institutions cannot afford a resident dietitian, and, even if they could, not enough dietitians are available. Some means of increasing the knowledge and improving the practices of those in charge of institutional diets was sought. One of the first steps in this direction would be to have available suitable printed material for reference and instruction. Such material was not available. Consequently, as a part of the program of the Committee, work was begun by the Bureau of Human Nutrition and Home Economics of the United States Department of Agriculture, to prepare a manual on *Planning Food for Institutions*. The completed manual was directed specifically to lay personnel. Material was still lacking which would aid in developing and extending the services of consulting dietitians. Therefore, the Food and Nutrition Board requested the American Dietetic Association to prepare a series of articles to be used by and through the consulting dietitian. The Association has complied, and the resulting articles will appear serially in this JOURNAL.

The articles from the JOURNAL will be available as reprints. It is believed that the information can be more widely distributed and, therefore, more useful when available as reprints than if the collected articles were published as a manual. The first of the series of articles follows.—*P. C. Jeans, M.D., Chairman, Committee on Institutional Feeding, Food and Nutrition Board, National Research Council.*

* * * * * *

The need for developing the services of a consulting dietitian has become evident as greater emphasis has been directed toward improving the dietary standards of institutions. However, obstacles have confronted dietitians and nutritionists active in this type of work. Consulting service is comparatively new in the field of dietetics, and techniques and procdeures have not, as yet, been fully developed. Some consultants have little or infrequent contacts with food service personnel; others have direct authority and frequent contacts with such people.

Because of the varied relationships of consultants to institutions, it is difficult to present specific procedures and it is not feasible to attempt to cover all the problems of all types of institutions. Factors such as size and location of the institution, age and physical condition of the persons being fed, and adequacy of the budget for the total food service influence the type of food service. With these factors in mind, this series of papers was developed:

(a) To recognize and consider the problems of consultation services in each phase of dietary administration.

(b) To provide a critical bibliography consisting of two types of source material: first, a list of selected references providing the consultant with new and pertinent material to help her evaluate and meet her problems; and second, a list of references to be distributed by the consultant directly to institutional personnel.

Regardless of the type of problems encountered, the consultant's ultimate aim is to encourage the service of diets adequate to meet the needs of the various age and activity groups involved. The science of nutrition has recognized these varying needs, and the art of dietetics and the techniques of institution management join forces to aid institutions without trained personnel in achieving these goals.—*Adelia Beeuwkes, Chairman, Community Nutrition Section, 1948–49, The American Dietetic Association.*

Dietary Consultation—A Service for Small Institutions

I. Scope of Work

MARIAN C. JONES[1]

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THE field for dietary consultation to small institutions on a state-wide basis is still in the embryonic stage, but it is developing so rapidly that the Community Nutrition Section of the American Dietetic Association included in its projects[2] for last year a study of the assistance being given in each state to institutions without trained personnel.

Currently more and more requests from institutions for dietary consultation are being received—so many, in fact, that 25 per cent of the state health departments have found it advisable to employ full-time, qualified dietitians as consultants and more would do so if personnel were available. In many states, the nutritionists employed by various state agencies are giving such assistance.

The need for consultation service from qualified professional dietetic personnel and the development of these comparatively new programs are the result of several factors. The majority of hospitals in most states are under fifty beds, and it is unlikely that full-time qualified dietitians could ever be employed by them. With the increasing recognition of nutritional requirements, higher food standards are being universally accepted. As a result, the dietitians, nutritionists, health officers, administrators, and others interested in institutional feeding have instigated consulting services as a means of raising the standard of food service in small institutions. Another factor is the shortage of qualified dietitians.

During the past three years, three states—Illinois, Indiana, and Mississippi—which conducted surveys of hospital facilities found a serious lack of qualified supervision in the hospital dietary departments. Tables 1 and 2 clearly illustrate this deficiency, and it is to be expected that comparable conditions might be found in other states if similar surveys were made.

Those states which have already employed qualified personnel to handle requests for dietary consultation from institutions have done so because they felt that it was a full-time work and not just part-time work for their nutritionists, who already were carrying heavy loads in nutrition education programs. However, some states having large staffs of nutritionists located throughout their states in strategic positions are making use of their talents in doing work with institutions as a part of their community project work.

TABLE 1

Number of dietitians employed in hospitals in three states

STATE	POPULATION	QUALIFIED DIETITIANS RESIDING IN STATE*	NUMBER OF HOSPITALS		
			Total*	Over 50 beds	Under 50 beds
Illinois	6,316,023	646	201†	143	58
Indiana	3,427,796	164	124‡	60	64
Mississippi	1,996,333	30	121	36	85

* Excludes Veterans Administration hospitals.

† Number reporting out of a total of 224.

‡ Excludes mental hospitals. One consulting dietitian covers all mental hospitals.

TABLE 2

Qualifications of persons supervising dietary departments in hospitals in three states

STATE	QUALIFIED PROFESSIONAL DIETETIC PERSONNEL		COLLEGE GRADUATE BUT NO PROFESSIONAL DIETETIC TRAINING		PERSONNEL WITH NO DIETETIC TRAINING	
	number	%	*number*	%	*number*	%
Illinois	100	49.8	22	10.9	79	39.3
Indiana	24*	19.3*	9	7.2	91	73.5
Mississippi	6	4.9	17	13.2	98	81.9

* Eight hospitals (6.5 per cent) employ, in addition, qualified professional personnel whose duties pertain only to diet therapy.

[1] The author wishes to express her appreciation to the state officials who cooperated with her in allowing the use of figures from the following surveys: Illinois 1947 Hospital Survey; Indiana 1948 Hospital Licensing Surveys; and Mississippi 1948 Hospital Survey.

[2] Committee for National State Project #1 of the Community Nutrition Section, 1948–49: Wilma F. Robinson, Chairman, Jane Hartman, Marian C. Jones, Juanita Cochran Miller, and Kathleen Van Cleft.

The passage of the Hill Burton Act, Public Law 725, in Congress in 1946, also encouraged a few states to employ qualified dietitians. This law was designed to help states with the construction of hospitals and health centers, so that the need for more hospital beds and for community health centers can be met. The federal government provides a part of the money for construction, and the state or local community provides the rest in those states that have developed a state plan. The money is distributed according to priority rating set up from the state plan, and in each state some official agency has been designated to distribute the federal funds. All plans for new buildings which are receiving federal aid must be approved by the U. S. Public Health Service.

As state health departments and special hospital commissions began to work with plans for remodeling old hospital buildings and for new hospital construction, they found it desirable to have a qualified dietitian on the staff. Because it is usually figured that 15 to 30 per cent of the cost of operating a hospital is concerned in some way with the food service, the departments in charge of these building programs felt that thorough and proper study of food handling problems in the hospital in the planning stages would result in considerable saving in the cost of construction, and also in the maintenance and operation of the hospital dietary department. The consulting dietitian confers with architects, hospital board members, hospital administrators, members of the medical staff, and consulting nurses and administrators concerning the proper flow of work and the equipping of kitchens. Aid is also given to hospital administrators in planning the food service to the patients and personnel.

PROJECT #1 OF THE COMMUNITY NUTRITION SECTION

In developing the project in the Community Nutrition Section of the American Dietetic Association, a survey form was worked out to learn: (a) what service state health departments are giving to institutions; (b) who gives it—a consulting dietitian or a nutritionist; (c) the types of institutions receiving assistance; (d) the types of requests for assistance received; (e) the ways in which aid is given and the materials that are used; (f) the status of the dietitians who have been employed to give dietary consultation; and (g) any other related work that is being done by the consulting dietitians.

Copies of the questionnaire were sent to the Community Nutrition Chairmen of forty-five states, Hawaii, and the District of Columbia.

Of the forty-seven survey forms sent out, thirty-eight were returned and tabulated. In thirty-four of the thirty-eight states from which replies were received, or 89.5 per cent, some kind of dietary assistance to small institutions is being offered. In twelve states qualified dietitians are employed full time to provide this service, and in four of these twelve states, limited service is also given by the nutritionists regularly employed by the state. In the remaining twenty-two states, only limited service is offered, which is done on a part-time basis by the regular nutritionists of the state.

It was interesting to note that in the twelve states which have already employed qualified dietitians to give their dietary consultation service, there does not seem to be much uniformity about the bureaus or divisions of the health departments in which they have been placed. Four are employed by the Maternal and Child Health Division. Two are in the Hospital Construction and Services Division, and two are in the Nutrition Division. In the remaining four states, the employing departments are: Board of Control of State Institutions, Executive Office, Health and Physical Education, and Medical Services.

The titles which these consulting dietitians use also varies with the state, although the qualifications and experience required for the positions is quite consistent. In seven states, this type of position carries the title "Consultant Dietitian." In the remainder, the following titles are used: Chief Dietitian, Institution Nutrition Consultant, Nutrition Consultant, Nutrition Supervisor, and Senior Nutritionist. To be qualified for such work, in eight states the dietary consultant must have professional affiliation and two to five years' administrative experience. In three states, the qualifications have been set as follows: college graduate in home economics and three to five years' experience. Strangely, in one state which employs a dietary consultant, no qualifications have as yet been established.

INSTITUTIONS RECEIVING ASSISTANCE

In checking the returns of the survey forms, it was found that 77 per cent of the requests for assistance are from hospitals of less than one hundred beds. The requests originate from several sources. Some are referrals from other state departments or divisions within the state, and some are direct requests for aid from individual institutions. In some states notices have been sent to the hospitals advising them that the consultation service is available, and the consultants call on those who indicate interest. In one state, the consultant calls on all institutions, introducing her service and establishing confidence.

In all cases, the process of gaining confidence to the point of acceptance is of vital importance. This is especially true where the request originates from another state department or in a state where a licensing law, setting up specific standards of operation, has been passed. Much time must be spent in studying each situation and establishing rapport before assistance can be given.

The types of institutions designated as eligible for assistance vary considerably. It seems that the need for assistance to tuberculosis and mental hospitals

TABLE 3

Types of institutions receiving dietary consultation assistance in thirty states

TYPE OF INSTITUTION	NUMBER OF INSTITUTIONS
State and county tuberculosis hospitals	29
Children's homes and correctional institutions	28
Children's hospitals	27
Convalescent, nursing, and county homes	24
Maternity hospitals	23
Non-profit general hospitals	23
Private tuberculosis hospitals	23
State mental hospitals	23
Proprietary general hospitals	20
Prisons	14
Private mental hospitals	14
Industry	12

was recognized more quickly than the need for help in other types of institutions. Several states have had dietetic service for mental hospitals set up on a state-wide basis for years and have well defined, productive programs in operation. Most of these operate separately from the state health departments under special mental health councils or under welfare departments. Recently, one state, with the state medical and tuberculosis associations as instigators of the program, employed a consultant in dietetics for tuberculosis hospitals and home patients at the state level. It is proving so satisfactory that plans are under way to extend the service to other institutions.

There seems to be a good deal of dietary consultation being given to children's homes, and these homes are vitally in need of assistance. Few employ dietitians or probably ever will, and the need is great to insure our young citizens an adequate, well prepared diet. In one state, the creation of the position of consulting dietitian was the result of work done with children's institutions by the state dietetic association during the war, when dietitians offered their services. When the war ended, and the association dropped its program, the institutions had come to depend on this service and the requests for aid were so numerous that the state undertook to continue the work. It is to be hoped that more work can be done for this type of institution, for children stay in them over a long period of time, and it is essential that they receive the proper diet during the formative years of their lives.

In checking the questionnaires, it was found that thirty of the thirty-eight checked the types of institutions receiving aid. These are shown in Table 3.

The amount of time spent by the consultants in the institutions varies, but in all instances it is quite limited. Twenty-six of the thirty-eight questionnaires checked the amount of time spent for visits. In 81 per cent of the calls, the time was one day or less, and in 19 per cent it was more, usually two or three days. Few of the consultants make more than one visit a year.

TABLE 4

Types of requests most frequently received

TYPE OF REQUEST	NUMBER REPORTING
Menu planning	31
Menu evaluation	25
Diet therapy	19
Recipes	18
Food purchasing	17
Food service problems	17
Procurement of personnel (particularly dietitians)	17
Sanitation information	15
Purchase and care of equipment	14
Layouts	13
Food cost accounting	7
Personnel management	7
Teaching of student nurses	7
Employee training	6
Information on current trends in food service	6
Infant formula	4
Educational material for patients	2
Teaching of medical students	1
Food preservation	1
Food preparation and storage	1

TYPE OF HELP MOST FREQUENTLY REQUESTED

Thirty-three of the survey forms showed what types of requests for assistance are most frequently received, and they cover a large number of subjects. As can be seen from Table 4, the majority of requests are for menu planning, menu evaluation, and diet therapy. These are problems found in smaller institutions to a great extent, and it is apparent here. However, some of the requests originate in larger institutions where a problem may occur in planning new layouts or buying equipment, and many of them are for the procurement of dietitians.

METHODS OF THE CONSULTING DIETITIANS

About 28 per cent of the thirty-two questionnaires reported that a check list is used when the consultant makes a visit. Seventy-two per cent of the thirty-two reported that a copy of the consultant's report is sent back to the institution. This is good practice, and it was encouraging to find such a high percentage doing it. At the time of the visit, if many subjects are discussed, the administrators may not remember everything in detail and the written report may recall some of the points to his mind. If the report can be returned personally and reviewed with the administrator, it is helpful.

Very few, about 10 per cent, of the consultants and nutritionists doing this type of work use original material. Those who do, have for the most part developed forms for menu planning, menu guides, score cards for menus, and, in a few instances, sample sets of menus. A few of the states send out publications, usually monthly, on nutrition.

Nearly all are using printed material from other

sources, including the American Dietetic Association, the Bureau of Human Nutrition and Home Economics and other parts of the Department of Agriculture, the State Department, Children's Bureau, and commercial firms. Text books, such as Cooper, Barber, and Mitchell (1) and Fowler and West (2), are also used frequently.

RELATED WORK DONE BY CONSULTANTS

In 37 per cent of the states returning the questionnaires, the consultants review blueprints for construction of various institutions, mostly hospitals but occasionally for other state buildings and children's homes. In working with this construction program, it involves, making recommendations on the equipment needed as well as on the layouts to provide for efficient flow of work. The equipment includes everything from that which is custom built into the building itself and goes into the construction contracts, to the last dish that the institution will need.

The consultants in 45 per cent of the thirty-eight states from which replies were received hold institutes or conferences relating to food service for the personnel of hospitals, children's homes, and other institutions. Usually these meetings are arranged with the help of related groups, such as other state departments interested in the institutions and local groups, including hospital associations and home economics organizations. These institutes are conducted in local communities that are a central point for a certain area of the state, so that no one attending will need to travel too far to attend them. They cover the subjects of menu planning and evaluation, sanitation, food purchasing and preparation, and diet therapy. They usually allow time for discussion, because much can be gained by discussing problems and working out solutions together.

EVALUATION OF ASSISTANCE GIVEN

Twenty-five of the questionnaires designated whether or not they were able to evaluate the results of their service. Only ten indicated that they could; they were from the states having had the service for a longer period of time. Their evaluations were based on recommendations that had been followed, changes in menu plans and market orders, and changes in general attitudes.

WAYS OF MEETING NEEDS SHOWN

As the program develops and more requests for assistance are received, it is becoming apparent that the institutions need more help and supervision of the dietary departments than can be given in infrequent one- or two-day visits. A considerable number of the hospitals would like to employ dietitians, but, because many of them are under fifty beds and in small communities, the possibility of their acquiring qualified personnel is remote.

There are several ways in which assistance can be provided. After the consulting dietitian has studied the situation in a given institution, she can seek the help of some trained person residing in the community, possibly the home economics teacher in the local school, a home demonstration agent, or a married dietitian—someone who has a background that will lend itself to dietary consultation. The consultant can explain the problem to the person selected and show her how she could help the institution and community by giving even a limited service.

Another method would be to locate a dietitian who would like to work for two or three institutions, giving a few days a week to each. This has been done in several instances and has worked out to good advantage. The consultant usually knows which places could use a dietitian in this manner and which ones would benefit most from it.

It is hoped that in the coordinated hospital system some method can be worked out whereby dietary assistance can be given to this type of food service. The coordinated hospital system is "an interrelated network of general hospitals throughout a state in which one or more base hospitals provide district hospitals and the latter in turn provide rural and other small hospitals with such services relative to diagnosis, treatment, medical research and teaching as cannot be provided by the smaller hospitals individually"(3). This is something that will have to be worked out in the future although it has been done to a minimal extent by at least one university medical center. This center has helped insufficiently trained personnel from rural areas with menu planning and modified diets.

As an aid to those already in and those entering the field of consultation, the JOURNAL has developed a series of articles which will be published in the immediate future and will cover the following subjects:

Menu Planning
Food Preparation, Storage, and Waste
Sanitation
Layout and Equipment
Employee Training
Accounting and Food Cost Control

It is the hope of the Association that these articles will be of benefit to the consulting dietitians, nutritionists, and others doing consulting work at the local level, and that they will be instrumental in raising the food standards of all institutions throughout the nation.

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(3) Title 42, Public Health Authority. Sec. 622, Public Law 725.

Nutritional Adequacy, Cost, and Acceptability of Lunches in an Iowa School Lunch Program[1]

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MOBILIZING resources for the health and well-being of children is one of the nation's most important problems. Nutrition has much to offer for the total development of the child. The extent to which the present knowledge in this field is being applied to school children is not known. The school lunch program constitutes the first nation-wide effort to aid children through improving their nutrition. After several years of trial, it would seem important to evaluate the contribution of the school lunch and to ascertain problems involved in its administration.

These considerations prompted the Agricultural Experiment Stations of four states of the North Central Region—Indiana, Iowa, Kansas, and Ohio—in cooperation with the Bureau of Human Nutrition and Home Economics, to initiate an investigation of the food habits and nutritional status as they relate to the well-being of school children. In each state a representative sample of public schools, with and without lunch programs, was designed. Plans were made to obtain data showing the food intake, nutritional status, and various aspects of child development along with pertinent information regarding the home, school, and community.

To develop methods and procedures, to define the scope of the study, and to become better acquainted with public school systems, each state conducted a pilot study. In Iowa several departments and sections of the Iowa State College cooperated: Institution Management, Foods and Nutrition, Child Development, Home Economics Education, Economics, and Sociology.

The present paper presents the findings of the Institution Management phase of the pilot study in Iowa, which was conducted in a small rural school with grades 1 through 12. This report deals entirely with the school meal: its nutritional adequacy, cost, acceptability of menu items, per portion amounts served and wasted, lunch price compared to monetary food value, aid provided by federal commodities, and income and expenditures.

SCOPE OF STUDY

Most of the 245 children attending the school in which this research was conducted lived on farms and were brought to school in busses. Approximately two hundred of these students were served a complete lunch, which followed the Type A pattern. Since the school participated in the federal school lunch program, it received federal commodities and federal reimbursement which supplemented the income from students of 20 cents per lunch. Data were collected separately for students in three grade groups, grades 1 to 3, 4 to 6, and 7 to 12.

The objectives of the research were to:

1. Make the following studies for each of three grade groups:
   a. Compare the nutritive value of food served

[1] Contribution No. 1, Subproject 2—*The Nutritional Status of School Children: The School Lunch as an Influencing Factor*—of the North Central Region Cooperative Project NC-5, *Nutritional Status and Dietary Needs of Population Groups*.

(a) Iowa Agricultural Experiment Station, Ames, as Journal Paper No. J-1757, Project No. 1021. (b) The Bureau of Human Nutrition and Home Economics.

The data reported are taken from the theses submitted by Sara Luella Laughlin (Acceptability of foods served in an Iowa school) and Elizabeth L. James (Cost of operating a school lunch in Iowa) to the Graduate College of the Iowa State College in partial fulfillment of the requirements for the degree of Master of Science in Institution Management.

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and consumed with recommended nutritional allowances.

b. Relate the food cost of the lunches to their nutritional adequacy.
c. Determine acceptability of menu items.
d. Obtain information regarding desirable size servings to minimize plate waste.
e. Compare the cost of food served with the charge to the student.

2. Gain information that can be used as a guide in planning nutritious school lunch menus which children will accept and consume.
3. Determine the extent to which federal commodities aid the school lunch program.
4. Compare the distribution of expenses for the period studied with the recommended distributions, and compare the income and expenditures during the period studied with those of a comparable period in the preceding year.

METHODS OF PROCEDURE

The overall period of the study was from February 23 through May 17, 1948. At the beginning of the period, eighteen days were spent in developing procedures for collecting data, obtaining equipment needed to collect accurate weights and measures of food, and defining the scope of the investigations.

For each of the three grade groups, the following data were collected daily:

Number of students served
Number of students accepting each menu item
Menu items available for additional servings
Number of additional servings served of each menu item
Weight of each menu item before serving and the remainder after serving
Number of students leaving plate waste of each menu item
Weight of plate waste for each menu item
Average weight of adult portion for each menu item

In addition, a daily record was kept of: the menu; total number served; amount of food prepared and served; cost of this food; amount of usable, left-over food; and amount of federal commodities used. Price values assigned to federal commodities were obtained from the wholesale or retail merchants from whom the school usually purchased similar items.

Factors that might affect food acceptance were recorded. These included: appearance, aroma, and palatability of menu items; weather conditions, such as temperature, wind speed and direction, and barometric pressure; and other factors, such as illness, athletic activities, or unusual events.

The following were calculated from data for each grade group about each menu item:

Per cent accepting (based on number in group)
Per cent returning for additional servings (based on number accepting)
Per cent having plate waste (based on number accepting)
Net weight served to students
Average weight of food served per capita (based on number in group)
Average size serving (based on number accepting plus number returning for additional servings)
Average plate waste per capita (based on number in group)
Average amount of plate waste per individual serving (based on number accepting plus number returning for additional servings)
Average weight of food consumed per capita (based on number in group)
Average nutritive value of per capita amount served
Average nutritive value of per capita amount consumed
Average total cost of per capita amount served
Average cost of purchased food per capita amount served

The nutritive values of twenty lunches were calculated for both the daily average per capita amount served to and consumed by each of the three grade groups. The nutritive value of prepared menu items included in the lunches was calculated by adding the value of the individual ingredients as shown in the food composition tables (1, 2).

The recommended daily dietary allowances for each grade level were based on allowances published by the National Research Council (3). These allowances are stated for different age groups: children of ages 4 to 6, 7 to 9, 10 to 12; girls 13 to 15 and 16 to 20; and boys 13 to 15 and 16 to 20. The ages of the children who ate in the lunchroom were tabulated according to each of the three grade groups as shown in Table 1.

TABLE 1

Ages of children eating in lunchroom, classified according to grade groups

AGE	NUMBER OF STUDENTS					
	Grades 1–3		Grades 4–6		Grades 7–12	
	Boys	Girls	Boys	Girls	Boys	Girls
4–6	8	16				
7–9	17	16	7	7		
10–12		1	22	24	6	8
13–15			3		31	23
16–20					16	17
Total	25	33	32	31	53	48

The dietary allowances for each grade group were computed by multiplying the number of boys and girls in each age group, according to the allowance classification, by the respective recommended nutrients. The amounts of each nutrient were totaled for each of the three grade groups and divided by the number of children in the respective grade groups to obtain the average daily recommended allowances. Since an adequate lunch is expected to contribute at least one-third of the child's nutritive requirements, the average daily recommended allowances were divided by three. In Table 2 are given the nutrients which the lunches for each grade group should contribute.

TABLE 2

Recommended nutrients per lunch for each grade group

NUTRIENT	UNIT	GRADES		
		1–3	4–6	7–12
Calories		614	807	976
Protein	gm.	18.7	22.8	27.5
Calcium	gm.	0.33	0.39	0.43
Iron	mg.	3.1	3.9	4.9
Vitamin A	I.U.	1034	1434	1643
Thiamine	mg.	0.31	0.39	0.46
Riboflavin	mg.	0.46	0.58	0.67
Niacin	mg.	3.1	3.9	4.6
Ascorbic acid	mg.	19	24	28.5

Daily food costs were computed to include: the cost of the purchased food; the value of the federal commodities used; and the total of these two items. Labor cost was obtained by adding the cost of employees' meals at the per capita food cost rate, and the allowance for the state old age and survivor's insurance to the daily wages. Before the food cost percentages were determined, the cost of employees' meals and adjustments for leftovers, if any, were deducted from the cost of purchased foods.

Per capita food costs were calculated on the basis of purchased food and of total food used. Cost determination for the three grade groups was based on data for the children within the groups exclusive of teachers and visitors.

NUTRITIONAL ADEQUACY OF LUNCHES

The nutritional adequacy of the lunches was considered in terms of calories, protein, calcium, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid. The methods used to study the nutritional adequacy of the lunches were to determine: first, the number of times lunches met one-third or one-half of all the recommended dietary allowances; second, the number of times lunches served and lunches consumed (amount served less the amount wasted) were deficient in specific nutrients; and third, which menu items provided the greatest amount of specific nutrients, including phosphorus.

Lunches That Met All the Recommended Allowances

The study of nutritional adequacy of lunches served to the three grade groups, over a period of four weeks revealed that the adequacy of the lunches decreased as the age of the students in each group increased. On the basis of the twenty lunches served, as well as lunches consumed, one-third of all the recommended daily dietary allowances were met eleven times for grades 1 to 3 and twice for grades 4 to 6. One-half of all the recommended daily dietary allowances were met only once; this was for grades 1 to 3. No lunches met one-third of the allowances for grades 7 to 12.

TABLE 3

Average daily per capital amount of menu items served and consumed for one week

MENU	FOOD SERVED			FOOD CONSUMED		
	Grades 1–3	Grades 4–6	Grades 7–12	Grades 1–3	Grades 4–6	Grades 7–12
April 12						
	oz.	*oz.*	*oz.*	*oz.*	*oz.*	*oz.*
Meat balls and spaghetti	6.2	12.4	6.7	5.3	12.1	6.3
Fruit salad	2.4	2.3	1.0	1.9	1.9	0.7
Bread and butter	1.9	1.9	1.7	1.9	1.6	1.7
Refrigerator cookie	0.6	0.8	0.4	0.6	7.8	0.4
Milk	8.0	8.0	8.0	8.0	7.8	7.8
Orange juice*	3.2	2.1	4.4†	3.2	2.1	4.4
April 13						
Macaroni and cheese	6.3	7.1	5.0	6.3	6.5	4.9
Buttered green beans	3.0	1.9	1.2	2.9	1.8	1.2
Bread and butter	1.4	2.2	1.2	1.3	2.2	1.1
Fresh apples‡	3.2	3.7	3.8†	3.2	3.7	3.8
Milk	8.0	8.0	8.0	7.7	7.9	7.8
Orange juice*	3.0	1.6	4.4	3.0	1.6	4.4
Grapefruit juice*	—	—	2.0 †	—	—	2.0
April 14						
Creamed chicken	3.2	3.1	2.3	2.6	2.8	2.1
Mashed potatoes	4.1	4.6	3.4	4.1	4.7	3.4
Cabbage salad	1.5	0.8	1.5	1.5	0.7	1.4
Bread and butter	0.8	2.1	2.0	0.7	2.0	1.9
Chocolate cookies	1.2	0.8	0.7	1.2	0.8	0.7
Milk	8.0	8.0	8.0	7.9	8.0	7.8
Orange juice*	3.6	2.4	4.0	3.6	2.4	4.0
Grapefruit juice*	—	—	2.0 †	—	—	2.0
April 15						
Beef vegetable dinner	0.9	10.9	7.0	0.2	10.4	6.7
Bread and butter	2.6	2.8	1.2	2.5	2.8	1.2
Peanut butter cookie	1.5	1.4	1.2	1.5	1.4	1.2
Canned peaches	1.3	1.4	2.1†	1.2	1.4	2.1
Milk	8.0	8.0	8.1†	7.9	7.9	7.8
Orange juice*	6.4	3.2	3.4	6.4	3.2	3.4
April 16						
Creamed peas	5.1	2.4	1.9	5.0	2.4	1.8
Lettuce salad	2.0	1.3	1.1	1.8	1.2	1.0
Cheese sandwich	1.6	3.8	1.3	1.5	3.7	1.2
Apple crisp	2.4	2.5	7.8†	2.0	2.4	7.7
Milk	8.0	8.0	6.1	7.7	8.0	6.0
Orange juice*	5.6	4.6	4.2	5.6	4.6	4.2
Grapefruit juice*	—	—	2.1 †	—	—	2.1

* Fruit juices were served at recess to the first and second groups and during the lunch period to the third group. Sometimes grapefruit juice was not served to the first two groups because these students preferred orange juice.

† Largest amount served to grades 7 to 12.

‡ Since the children took their apples with them to the playground, it was not possible to keep a record of the waste.

More supervision and less opportunity on the part of the students to determine size of portions served may have been responsible for the younger childrens'

receiving lunches which more often met the recommended allowances, since the same menu items were available to all. Another factor may have been the time of service. Usually all of the food for the three groups was prepared at one time. If a menu item were especially popular with the first two groups, or the amount prepared were relatively small, the supply for the students in grades 7 to 12 was sometimes inadequate since they were served last.

The percentage of students in the third group returning for additional servings was small. The first group, however, usually had an almost unrestricted number of additional servings. Had the size of servings for the students in grades 7 to 12 increased in proportion to the needs of these students, the lunches would have more nearly supplied the recommended dietary allowances. Amounts served and consumed for one week are shown in Table 3. This particular week was selected for this summary report since it includes April 16, the day referred to in Table 8 and Figure 4. During this week for only eight of the thirty-one menu items did grades 7 to 12 have the largest serving of a menu item, even though the recommended allowances were greatest for this group. This third group never received the largest serving of a main dish, vegetable, salad, sandwich, or bread.

Deficiencies in Specific Nutrients

Although the amount of plate waste was considered to be relatively small, there was a marked difference in the nutrients provided by the lunches served and consumed. In Table 4 a comparison is made between the twenty lunches served and consumed on the basis of the number of times specific allowances were not met. Most of the lunches served the students in grades 7 to 12, that is seventeen out of twenty, were inadequate in protein, while those served the other two groups were adequate in this respect except for two lunches served to grades 4 to 6. Many of the lunches served to grades 1 to 3 provided an excess of some nutrients, whereas the lunches served grades 7 to 12 often did not meet one-third of the individual allowances.

TABLE 4

Number of times recommended allowances for specific nutrients were not met by twenty lunches served and consumed

NUTRIENT	NUMBER OF TIMES ALLOWANCES WERE NOT MET					
	Grades 1–3		Grades 4–6		Grades 7–12	
	Served	Consumed	Served	Consumed	Served	Consumed
Calories	0	3	5	5	16	16
Protein	0	2	2	5	17	17
Calcium	0	0	4	5	8	9
Iron	3	6	5	9	15	16
Vitamin A	5	5	15	16	19	19
Thiamine	0	1	2	3	5	11
Riboflavin	0	0	1	1	9	10
Niacin	3	4	4	5	11	12
Ascorbic acid	0	0	0	0	0	0
Total.....	11	21	38	49	100	110

On the basis of lunches consumed, the amount of ascorbic acid provided was always adequate. In fact, in over one-half of the instances, the amount provided and consumed exceeded the recommended allowances for the entire day.

The amount of vitamin A provided in the twenty lunches consumed failed to meet the recommended allowance five times in the first group, sixteen in the second, and nineteen in the third. On the basis of these findings, an increase in green leafy and yellow vegetables and a more liberal allowance of butter or margarine were recommended.

The amount of iron provided did not meet the recommended allowance six, nine, and sixteen times for the first, second, and third groups respectively.

Menu Items Providing Greatest Amount of Specific Nutrients

An analysis was made of the menus over a period of seven days chosen at random to determine which items in the lunch provided the greatest amount of any one nutrient, based on the per capita amount consumed by each grade group. Orange juice was always the best source of ascorbic acid, except for one day for one grade group. On that day creamed potatoes supplied the most ascorbic acid, 47 mg., when the per capita amount of soup eaten by grades 4 to 6 averaged 10.8 oz. Of the seven lunches, the number of times bread and butter sandwiches supplied the greatest amount of carbohydrate, iron, thiamin, and niacin is shown in Table 5.

These findings emphasize the contribution of enriched bread. The milk served as a beverage was found to be the one most important menu item. The tabulation in Table 6 shows how frequently milk was the best source of some nutrients during the seven-day period.

COST OF LUNCHES

The per capita cost of the lunches served to each of the three groups was considered in relation to the

TABLE 5

Number of times bread and butter sandwiches supplied the greatest amount of certain nutrients during seven-day period

NUTRIENT	NUMBER OF TIMES		
	Grades 1–3	Grades 4–6	Grades 7–12
Carbohydrate	1	3	2
Iron	1	2	0
Thiamine	1	2	2
Niacin	1	1	0

TABLE 6

Number of times milk supplied the greatest amount of certain nutrients during seven-day period

NUTRIENT	NUMBER OF TIMES		
	Grades 1–3	Grades 4–6	Grades 7–12
Protein	0	2	2
Fat	3	1	4
Calcium	7	6	7
Phosphorus	3	4	5
Vitamin A	1	6	6
Riboflavin	6	6	6

nutritional adequacy of the lunches. These food costs included cost of purchased food plus value of federal commodities. The lowest, highest, and median daily average per capita food costs for lunches served each grade group are shown in Table 7.

The relationship between cost of the lunches and the amounts of individual nutrients supplied was studied by plotting scattergrams and by arranging the lunches in an ascending list based on of cost and amount of individual nutrients supplied. In general, the most nutritionally adequate lunches were usually the more expensive lunches. A few exceptions occurred, due to the inclusion of low-cost foods of high nutritive value, such as nonfat dry milk, or of high-cost foods of poor nutritive value, such as certain desserts. The per capita costs in relation to nutrients supplied by four lunches served grades 1 to 3, 4 to 6, and 7 to 12 are shown in Figures 1, 2, and 3.

The cost and nutritive content of the lunches served depended not only on the menu items, but on the amounts of foods served. In Table 8 is shown the nutritive value of lunches served to the three grade groups on one day. The same menu items were available to all the groups; the variation in nutrients provided is caused by differences in amounts of the individual menu items served. The extent to which this lunch met or exceeded one-third of the recommended allowances for each grade group is shown in Figure 4.

ACCEPTABILITY OF MENU ITEMS

Records were kept over a period of forty-four days to measure the acceptability of menu items. Except for three items, the appearance and palatability of most of the food served in the lunchroom was rated as excellent and all other items as good.

In general, the children accepted all food well. The third group usually had the greatest percentage of children accepting the menu items and the smallest percentage returning plate waste. The first group usually had the smallest percentage of students accepting menu items and the largest percentage returning plate waste. The second group quite often had the largest percentage of students returning for additional servings, while the third had the smallest.

TABLE 7

Daily average per capita food costs for lunches

GROUP	AVERAGE PER CAPITA FOOD COST		
	Lowest	Highest	Median
Grades 1–3	$.144	$.275	$.185
Grades 4–6	.133	.271	.190
Grades 7–12	.146	.245	.188

TABLE 8

Nutritive value of lunch served to different grade groups on April 16, 1948

NUTRIENT	UNIT	GRADES		
		1–3	4–6	7–12
Calories		852	1059	1017
Protein	gm.	25.9	33.7	19
Calcium	gm.	0.591	0.8	0.452
Iron	mg.	6.2	6.2	6.2
Vitamin A	I.U.	2388	2535	1477
Thiamine	mg.	0.56	0.6	0.42
Riboflavin	mg.	0.76	0.9	0.59
Niacin	mg.	4.0	5.2	3.0
Ascorbic acid	mg.	92	74	89

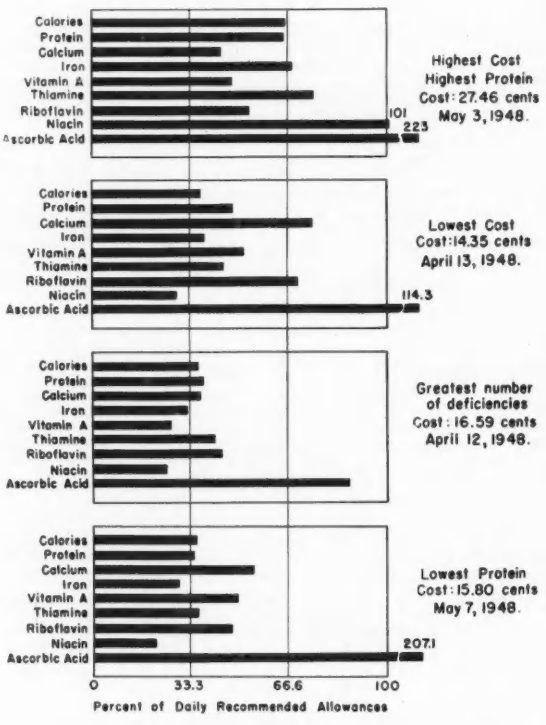

Fig. 1 Per Capita Costs in Relation to Nutrients Supplied by Four Lunches Served Grades 1–3

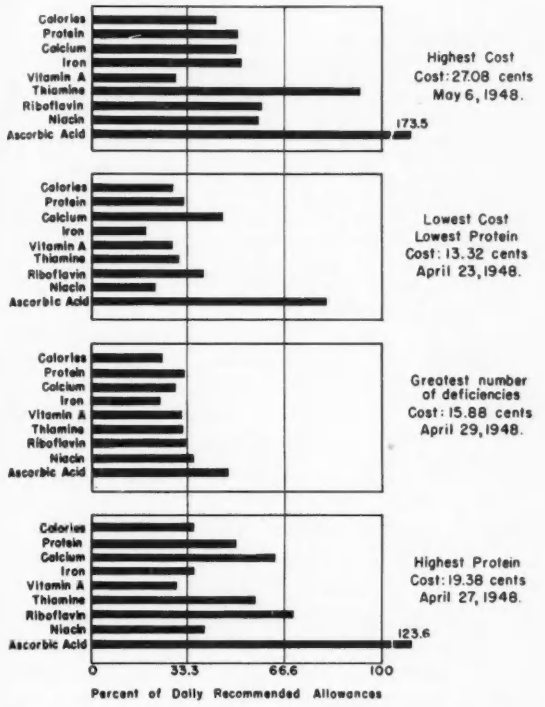

Fig. 2 Per Capita Costs in Relation to Nutrients Supplied by Four Lunches Served Grades 4-6

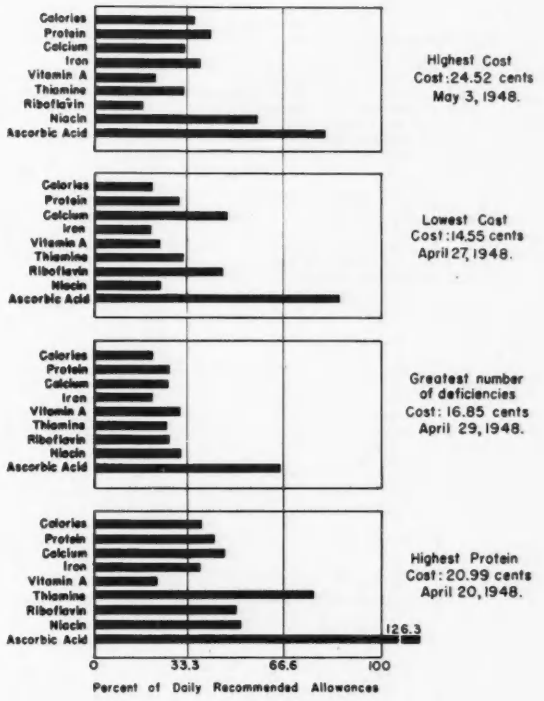

Fig. 3 Per Capita Costs in Relation to Nutrients Supplied by Four Lunches Served Grades 7-12.

The students seemed to like sandwiches, main dishes, and desserts best. They accepted vegetables and salads less readily. In general, the meat, fish, and poultry items were accepted by 80 per cent or more of the students. The same was true for sandwiches (except peanut butter), meat substitutes, desserts (except stewed prunes), and milk. There was 100 per cent acceptance of milk by the individual groups over half of the time, and acceptance never fell below 90 per cent, except three times for grades 7 to 12. Except for Harvard beets, creamed green beans, sweet potatoes, stewed tomatoes, and scalloped tomatoes, vegetables and salads were usually accepted by 75 per cent or more of the students. Irish potatoes were preferred to sweet potatoes.

Students in the first group favored buttered corn; those in the other groups favored creamed corn. Both methods of preparation rated above scalloped corn for the first two groups. Green beans and peas were preferred buttered rather than creamed. Tomatoes were not well accepted either scalloped or stewed, but of the two methods of preparation, scalloped were preferred. Creamed and mashed potatoes were both very well accepted.

The number of additional servings was dependent in part on the amount of an item prepared. Usually there were no additional servings for salads, desserts, and milk.

With but one exception, the percentage having plate waste for the meats, fish, and poultry group was highest for grades 1 to 3 and lowest for grades 7 to 12. This sequence was typical for the majority of the menu items except for desserts and milk, for which foods grades 4 to 6 had the lowest percentage of children having plate waste. Although there was a wide variation in the percentage of children returning plate waste, it was found that when a high percentage of children in one grade group returned plate waste for a single menu item, in general there was a relatively high percentage for each of the other two grade groups at the same time.

Of those accepting a menu item, the range of the per cent having plate waste during the forty-four-day period was as given in Table 9.

The effects, if any, of weather conditions were not apparent; however, there were no extreme variations in weather during the period of the study. An epidemic of measles seemed not to alter the acceptance habits of the children but did seem to increase the amount of waste left by these students.

PER PORTION AMOUNTS SERVED AND WASTED

In addition to determining the average per capita amounts served and wasted, the per portion amounts served and wasted were determined thirty-two days. This was done to learn the average weight of an

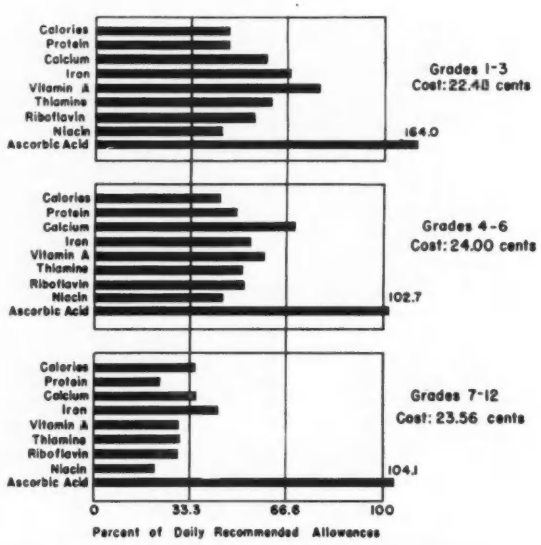

Fig. 4 Variation in Per Capita Cost and Nutritive Content of Lunches Served to Different Grade Levels on Friday, April 16, 1948.

individual portion served to a student who accepted a menu item or returned for an additional serving and the average amount wasted per serving.

The first grade group usually had the largest per portion serving and the largest per portion amount of plate waste. The third group had the smallest per portion serving while the second group had the smallest per portion amount of plate waste. The fact that grades 1 to 3 had the largest per portion servings and grades 7 to 12 had the smallest is the opposite of what one would expect when considering the recommended nutrients per lunch for each group, as shown in Table 2.

In general, the per portion amount of plate waste was less than $\frac{1}{2}$ oz. for a single menu item and was frequently less than $\frac{1}{10}$ oz. The items for which there was no plate waste varied considerably for the three groups.

LUNCH PRICE COMPARED TO MONETARY FOOD VALUE

The price of the lunch to the students was 20 cents per day. If a student were unable to pay for his lunch, he was served without discrimination; in April, 3.8 per cent of student meals were served free, and in May, 1.7 per cent.

The number of free student meals reduced the average student income for April to 19.2 cents. When the federal reimbursement of 6 cents was included, the income was increased to 25.2 cents. In May, the average student income was 19.6 cents per day. When federal reimbursement of 2 cents was included, the income was 21.6 cents per student per day.

The students in grades 4 to 6 received the highest

TABLE 9

Range of the per cent having plate waste during forty-four-day period

FOOD	PER CENT HAVING PLATE WASTE					
	Grades 1–3		Grades 4–6		Grades 7–12	
	High	Low	High	Low	High	Low
Meat, fish, and poultry	13.3	72.7	3.4	75.6	2.1	31.5
Other entrees	7.8	46.4	1.9	29.9	2.0	16.8
Vegetables	1.9	100.0	0	47.6	0	35.3
Salads	14.7	57.1	4.1	41.7	4.1	23.7
Sandwiches and breads	2.1	70.7	0	17.8	1.0	33.3
Deserts	0	49.0	0	21.2	0	16.7
Milk	0	12.3	0	10.7	0	14.0

TABLE 10

Average per capita food cost per meal for twenty-day period

GROUP	AVERAGE PER CAPITA COST OF FOOD	
	Purchases alone	Purchases plus value of federal commodities
Grades 1–3	$.145	$.192
Grades 4–6	.161	.195
Grades 7–12	.142	.188

monetary food value for their money, and the students in grades 1 to 3 seemed to receive a little more than the students in grades 7 to 12. The average per capita cost per meal of purchased foods and purchased foods plus value of federal commodities for the total twenty-day period, April 12 through May 7, is given in Table 10. At the 20-cent meal price level, the cost percentages including value of federal commodities varied from 71.8 to 137.3 for grades 1 to 3, from 76.1 to 135.4 for grades 4 to 6, and from 72.8 to 122.6 for grades 7 to 12. The food cost percentage for a school lunch operation is usually expected to fall within the range from 60 to 70 per cent. When purchased foods only were considered, the food cost exceeded 65 per cent fourteen days out of the twenty for grade groups 1 to 3 and 4 to 6, and twelve days of the twenty for grades 7 to 12.

AID PROVIDED BY FEDERAL COMMODITIES

The value of the federal commodities used varied from $1.60 to $17.80 per day with a median of $7.42. The per cent of total food cost provided by federal commodities varied from 6.0 to 43.3. The median per cent was 19.4, approximately one-fifth of the total food cost. This aid made it possible to serve lunches of higher nutritive content and still remain within the cost allowance. Some commodities which were not popular with the students, such as sweet potatoes, or commodities which were expensive, such as nuts, might not have been purchased, but most of the items could be used easily. The total per capita

TABLE 11

Income and expenditures of April 1 through May 14, 1948

ITEM	WITHOUT REIMBURSEMENT				WITH REIMBURSEMENT			
	April		May		April		May	
	Amount	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent
Income	$ 982.55	100.0	$493.49	100.0	$1247.69	100.0	$540.15	100.0
Expenses								
Food	745.96	75.9	367.87	74.5	745.96	59.8	367.87	68.1
Labor	368.93	37.6	167.95	34.0	368.93	29.6	167.95	31.1
Other	48.38	4.9	8.57	1.7	48.38	3.9	8.57	1.6
Total	1163.27	118.4	544.39	110.2	1163.27	93.3	544.39	100.8
Loss	180.72	18.4	50.90	10.2			4.24	0.8
Reserve					84.42	6.7		

value of federal commodities used for the four weeks April 12 through May 7, 1948 was 93.5, 68.4, and 91.8 cents for grades 1 to 3, 4 to 6, and 7 to 12 respectively.

INCOME AND EXPENDITURES

The distribution of expenditures for the period April 1 through May 14, 1948, is shown in Table 11. When the income from the lunchroom operation was used as a basis for computing the percentage distribution of expenditures, the food cost exceeded 70 per cent by 5.9 in April and 4.5 per cent in May. When the federal reimbursement of 6 cents was included as income, expenditure for food fell to 59.8 per cent in April. In May the federal reimbursement of 2 cents reduced the food cost percentage only from 74.5 to 68.1.

The labor cost percentage based on the income from lunchroom operation was high in April, 37.6. It is usually expected to fall within the range of 25 to 32 per cent. In May, although the daily labor cost remained constant, the increased average daily income reduced the labor cost per cent to 34. In April, the labor cost per cent based on total income was 29.6 and in May, since the federal reimbursement was only 2 cents, the labor cost rose to 31.1 per cent. The daily per capita labor cost for thirty-two days ranged from 6.8 to 8.2 cents.

All other expenses met by the lunchroom were included as other costs, which was 3.9 per cent in April and 1.6 per cent in May, when based on income including federal reimbursement. One of the major items of expense charged to this classification was bottled gas; the costs of paper supplies and soap were also relatively large. The amount charged to other costs varied to a great extent from month to month, and for the most part was independent of the regular day-to-day lunchroom operation.

DISCUSSION AND CONCLUSIONS

The differences found in the nutritional adequacy of the lunches served and consumed emphasize the importance of considering plate waste when evaluating a lunch; food consumed is a more reliable criterion than food served.

The noticeable difference in the nutritional adequacy of the lunches for the three grade groups indicates that greater consideration must be given to quantities of foods served. These findings suggest that the differences in the nutritional needs of the various age groups may not be recognized by the school lunch workers who plan, prepare, and serve the lunches. Portions should be standardized for the various age groups in relation to their respective nutritional needs. It is evident that a menu without statement of size of portion is not a reliable basis for evaluating a lunch.

By collecting data separately for each grade group, group differences became evident. Had only the averages for the entire group rather than the three groups been determined, excesses for one group would have tended to eliminate or reduce deficiencies in the others.

There seemed to be some direct relationship between the cost of lunches and the nutritional adequacy. To serve adequate lunches at a minimum cost, careful planning is needed to include low-cost foods of high nutritive value. Equal care is necessary to avoid high-cost foods of poor nutritive value.

The amount of food available during the serving periods for the three groups was another factor affecting the adequacy of the lunches. On the basis of the number of times lunches served and consumed met the recommended allowances of specific nutrients, grades 1 to 3 had the fewest deficiencies and grades 7 to 12 had the greatest number. Grades 1 to 3 were served first, and they usually had the smallest percentage of students accepting menu items, the largest percentage returning plate waste, the largest per portion servings, and the largest per portion amount of plate waste. In contrast, grades 7 to 12 were served last, and they usually had the greatest percentage of children accepting menu items, the smallest percentage returning plate waste, the smallest per portion serving, and the smallest number returning for additional servings. It would

appear that by planning in advance for a more judicious distribution of the available food among the three groups, the needs of the last group could have been more nearly fulfilled.

The fact that vegetables and salads were accepted less readily than other menu items may account in part for the deficiency in vitamin A value. It is gratifying to note the high acceptance of milk; there was 100 per cent acceptance by the individual grade groups over half the time.

The importance of the contribution of federal commodities is evident since they provided about one-fifth of the total monetary food value. The average monetary value of the food served to a student approximated 95 per cent of the price charged. This fact was only made possible through the aid furnished by the federal reimbursement and federal commodities. The average per capita value of federal commodities per child approximated 4 cents. With the additional 6-cent reimbursement, the total federal aid amounted to an average of 10 cents per child, as against the 20-cent lunchroom charge. As long as the income from students is acceptable as matching funds, this ratio would meet the requirements of the National School Lunch Act until 1955, at which time the state and local funds would need to be increased 50 per cent in order to maintain the required three-to-one ratio.

REFERENCES

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Conviviality—Morning, Noon, and Night

Pleasant informality will introduce the lighter moments of the 33rd Annual Meeting of the American Dietetic Association with the buffet lunch for the members of the House of Delegates, in the Federal Room of the Hotel Statler on Monday.

Sweet music, played by a Washington orchestra, will lend an air of festivity to the welcoming buffet supper, which will be held that evening in the Ballroom of the Mayflower. Entertainment, including the graceful turns of the minuet, performed by professional dancers, will preface the dramatic presentation of fall fashions by Julius F. Garfinckle, Inc.

As anyone knows, who has previously attended the two "history" gatherings, they are fascinating and stirring. Because they have stimulated an interest in the exciting past, a number of states have initiated the writing of their own chronicles. The History of the A.D.A. breakfast, Tuesday morning, is planned for the Council Room of the Statler.

A Tuesday evening dinner will bring together the Public Relations, Press Relations, Vocational Guidance, and Professional Education Chairmen—national, state, and local.

Wednesday evening, when no meetings are scheduled, a frolicsome dinner will honor the exhibitors. A strolling quartet will play and sing, dispensing their music impartially among the tables. Later, Jeanne Warner, lyric soprano, and Gene Archer, baritone, both featured radio and television stars, will entertain. Exhibition Virginia reels and square dances, raising the tempo of the performance, suggest a reasonably safe prediction of audience participation.

Another gathering of considerable numbers is the Community Nutrition dinner, to be held Thursday evening in the Federal Room of the Statler.

The alumnae of the various colleges and universities throughout the states will meet at the six meal times reserved for them throughout the week. These occasions, planned by the individual groups, are indicated on the tentative program, which appears in this issue of the JOURNAL beginning on Page 696.

Those who know the caliber of performance that has graced the History of Nutrition and Dietetics meetings in previous years will make certain to have tickets for the luncheon in the Williamsburg Room of the Mayflower on Friday.

A tradition observed since the first meeting of the Association, the banquet held on the final evening, will bring the annual meeting to an inspiring close. Jennings Randolph, Assistant to the President of Capital Airlines, recognized widely as a stimulating speaker, will be heard in the banquet address. Impressive though the occasion may be, with the presentation of awards and the introduction of the new president, the event is a festive one.

Is the Dietitian Adequately Prepared to Teach?[1]

MADGE MYERS

The Ohio State University, Columbus

RECENTLY a number of hospital dietitians received questionnaires concerning their status as teachers. These questionnaires were sent out as part of a project in progress at Ohio State University. In the questionnaire teaching was defined as being any act of orienting, guiding, instructing, or supervising that may be done (a) in formal classes, (b) in informal classes, (c) in on-the-job training, or (d) as the opportunity arises. The investigation was developed to study and appraise the effectiveness of the training of prospective dietitians which is concerned with teaching methods, aims, and practice.

Three possible methods of obtaining pertinent information were considered: literature, course content of undergraduate sequency and internship, and information obtained directly from the dietitians themselves (questionnaire distribution).

The review of the available literature revealed little beyond the fact that the assumption that a dietitian does considerable teaching is prevalent. In 1934, when Helen Clarke reviewed the type of training being offered at that time for hospital dietitians, she stated (1), "The dietitian is a teacher of patients, employees, and nurses." More recently, Houle, in an article in which he discussed the importance of the teaching duties of the dietitian, said (2): "It might well be said that all dietitians are teachers some of the time and some dietitians are teachers all of the time."

In examining the undergraduate requirements for prospective dietetic interns, it was observed that 3 semester hr. of one of three possible education courses are required: educational psychology, methods of teaching, or principles of education. Three hr. additional in methods of teaching nutrition are recommended. Other requirements include 18 hr. of chemistry and biology, 9 hr. of social sciences, and 18 hr. of foods, nutrition, and institution management.

From the review of the recommended course outlines for approved dietetic internships, it was noted that out of a proposed 113 hr. of class instruction for the year, 8 hr. were set aside for "Nutrition Education and Teaching Methods." The outline recommended that of the fifty-two weeks of practical hospital experience, two to four weeks be devoted to "Instruction in Educational Procedures (Practice Teaching in Classes for Student Nurses)."

[1] This paper is a condensation of a thesis presented in partial fulfilment of the requirements for Master of Science, Ohio State University.

THE SURVEY

Two questionnaires were developed and distributed—one for directors of hospital dietary departments and one for hospital dietitians who had from two to four years of experience since completing their training. The first questionnaire was sent to 159 directors, 88 of whom responded. There were 73 replies received from the circulation of 175 copies of the second questionnaire.

Questions were asked for the following purposes:

1. To obtain information concerning:
   a. Amount of teaching done by hospital dietitians.
   b. Kinds of teaching done (how and to whom).
   c. Time spent in preparation of teaching plans.
   d. Amount and kind of training in teaching methods and aims and practice teaching.
2. To obtain expressions of opinions concerning:
   a. Hospital dietitians' attitudes toward teaching.
   b. The degree of success the average hospital dietitian has in executing her teaching responsibilities.
   c. What teaching problems are encountered by the average hospital dietitian.
   d. Recommendations for change or improvements in the existing teacher-training experiences offered to prospective hospital dietitians.
3. To instigate some thinking and to create an interest among dietitians on the subject of teacher-training qualifications.
4. To obtain some general impressions from the manner in which the questionnaires were answered about the average dietitian's awareness of educational aims, ideals, and methods.

FINDINGS

Whenever possible, the replies to the questions were tabulated. Those that could not be treated in

this manner were presented in interpretive discussion.

It is fully appreciated that conclusions drawn entirely from the majority votes on a subject do not always represent the true status of the question at hand and that a strong minority representation should never be disregarded. Nevertheless, certain judgments and results which are indicative of existing practice and opinion will be presented.

(1) It was generally agreed that all dietitians teach, and many devote from one-half to three-fourths of their time to the performance of their educational duties. Moreover, many different groups are being taught in a wide variety of ways.

(2) A large percentage of both groups questioned indicated that some "off duty" time was required for lesson preparation.

(3) Seventy per cent of the department directors have given the rather startling estimate that only one-fourth to one-half of the average hospital dietitians are successful in the execution of their educational duties.

(4) Interest in teaching or lack of interest in teaching was considered by 85 to 90 per cent of the department directors as the most important single factor in contributing to the success or failure of a teacher.

Only about 55 per cent of the respondents rated adequate training in teaching methods and educational aims as being of importance in determining success or failure.

Lack of time to teach was rated by 56 per cent of the department directors as being somewhat contributory to failure in teaching. However, 65 per cent of the young hospital dietitians seemed to feel that they had time to do the teaching they now do, but 75 per cent indicated that if they had more time, they probably would do more.

(5) Since it was desired to determine by what standards the department directors judged the success or failure of a teacher, it was gratifying to discover that 96 per cent chose "follow-up observations on how well the students apply the material."

(6) When asked to choose the kind of dietitian they considered to be the best teacher, 64 to 68 per cent of the dietary department directors indicated that they believed that the dietitians interested in therapeutics, the dietitians with at least five years of experience, and dietitians with teachers' college training were the most capable.

(7) The department directors were about equally divided in their evaluation of whether or not the amount and kind of training in educational aims, methods, and practice is adequate to meet the needs of the average hospital dietitian. The responses from the young dietitians indicated, however, that the majority (78 per cent) consider themselves sufficiently trained to do the teaching that is expected of them.

(8) Eighty-one per cent of the department directors were of the opinion that there is an increasing demand being made for the dietitian to devote more of her time to nutritional education, and, that if she had more training in educational theory and practice (65 per cent of the replies), she would do more teaching than she now does. They (78 per cent) also indicated a belief that more emphasis needs to be placed on the dietitian as an educator.

(9) The majority of the responses from the department directors revealed that the inclusion of more teaching experience in the training courses for dietetic interns, and "refresher" or workshop conferences are the methods deemed most effective for increasing the teacher-training component of the curriculum for hospital dietitians (75 per cent and 71 per cent of the replies, respectively).

(10) When the young dietitians were asked to appraise the courses in education taken during their undergraduate training, practice teaching was rated by 62 per cent as being of most value.

(11) The amount of previous experience in some form of education work before becoming a dietitian did not appear to have any particular significance.

(12) When the dietitians with two to four years' experience in hospitals were questioned about their attitudes toward teaching, the majority stated that as students they had no particular objection to teaching and that now they rather enjoyed it. Only 10 per cent (seven out of seventy-three) replied that they did not like to teach.

INFORMATION OBTAINED FROM EXPRESSIONS OF OPINIONS

When the directors of dietary departments were asked to express their opinions concerning the training in education of the hospital dietitian, it is of interest to note that thirty-three of the eighty-eight respondents were sufficiently interested in the matter to make comments. Several main thoughts recurred in many of the comments:

(a) Dietitians do not like formal teaching, but do a pretty good job of instruction and informal teaching.

(b) Dietitians dislike teaching because they are afraid and don't know how to teach.

(c) The average dietitian hasn't time to teach properly; therefore, a teaching dietitian is needed on the staff.

(d) Hospital administrators are less interested in the teaching abilities of their dietitians than in the performance of their other duties.

(e) If the undergraduate work in education is adequate, the internship can give sufficient practice to prepare dietitians to teach.

(f) Much more emphasis needs to be placed on the importance of the teaching responsibilities of the dietitian.

A few quotations from the comments as written by the department directors themselves will serve to illustrate these points:

Too many girls entering the field do not know how much teaching is required. Many have entered the field because they do not wish to teach school, but are interested in foods and nutrition. Their training has been from the administrative viewpoint. . . .

Dietitians are teachers 8 hr. a day, but if they are successful teachers, it is because they *want* to be so. Don't believe all dietitians enjoy teaching, and believe that many successful ones avoid it for other phases of the work, such as accounting and record keeping.

All dietitians are teaching whether they are aware of doing so or not. Perhaps their informal teaching is most important as far as the profession is concerned. More stress should be placed on the importance of teaching before internship. Younger dietitians are more "eager beaver" in their approach, but discourage more easily. Many dietitians have too many other duties they consider more important than teaching. This brings up the problem of a person who is a teaching dietitian only. This is bad, because she hasn't the patient contacts to make her teaching more applicable. . . .

Heartily agree that there should be more emphasis placed in training the dietitian for teaching. . . .

Refresher courses are necessary for teachers of dietetics. Too many dietitians are forced to teach due to shortages of dietary staff and demands of the nursing school for students' requirements. The majority of dietitians who hold responsible positions are poor teachers; they are not interested or interesting. Most student nurses dislike theory (diet) due to the inadequate material. . . .

I feel that somehow young women majoring in dietetics must have the opportunity not only to learn the educational aims, principles, etc., but must learn to express themselves before groups and individuals, and have opportunity to lead and direct others under supervision of experienced persons. I feel that much lack of interest in teaching is really fear and lack of self-confidence. Dietitians frequently dislike teaching because they don't *know how* to teach. Major faults: stage fright, lack of ability to organize material in logical and concise manner, "fuzzy" thinking, and/or superficial knowledge. . . .

I think we must admit that all dietitians cannot do all things. In many instances, the hospital management has more complaints about the dietitian with food standards not quite high enough, with management and organization experience not quite adequate to the job than the educational program of the department.

When the hospital dietitians who had been working from two to four years were asked to give the amount of training in educational theory and the amount of practice teaching that they had had during their internships, the responses revealed that relatively few felt that they had had much training in either phase. A summary of the replies, while not entirely representative of the situation because of indefinite and incomplete responses, does give some indication of existing opinions:

Training in Educational Theory

(a) Six respondents said they had no training.

(b) Two reported "very little" theory.

(c) Two listed demonstrations and observations of others' teaching.

(d) Six replied that they had had classes in teaching methods.

(e) Three had had graduate classes in philosophy of education and visual aids.

(f) The remainder of the respondents indicated that they had had some theory in lectures, readings, and in seminar reports. The impression gained from these replies was that the experience was rather limited.

Training in Practice Teaching

(a) One stated she had none.

(b) One stated "by observation only."

(c) Four listed patient instruction.

(d) Four conducted one class only with fellow students as pupils.

(e) Three listed employee training experience.

(f) One gave "on-the-job training for student nurses."

(g) The rest of the responses indicated that as dietetic interns, they had conducted either a lecture or a laboratory class for student nurses from one to six times. The majority gave *once* as the number of times, *twice* was second in frequency, and only six stated that they had conducted *more* than two classes.

When the young hospital dietitians were asked to report on any major problems encountered in their teaching experiences, of the sixty replies, eight stated they had no problems. One said, "None I am aware of," and one reported "I only teach student nurses—so have no problems." The remainder reported almost as many "problems" as the number of replies. However, several points recurred frequently enough to make it possible to present some generalizations:

(a) Need for ability to present material in an interesting manner.

(b) Need to know how to express subjects in a simple manner; how to give clear instruction.

(c) Experience in how to teach.

(d) How to motivate others.

(e) How to select and organize subject matter to meet needs of learners.

(f) How to make lesson plans, write examinations, and how to evaluate work done.

(g) Need for self-confidence.

(h) Need to know more basic information in medicine, quantity cookery, and other topics in order to teach better.

A few statements quoted directly from the replies may help to emphasize these points:

More experience. . . .

More educational material—as to actual teaching procedures. . . .

Making the work interesting to student nurses. . . .

Not qualified to do group teaching. . . .

Better understanding of methods of teaching and how to apply them to own field, how to evaluate students and own methods; analysis and use of teaching aids. . . .

More self-confidence and practice in explaining theories and procedures. . . .

Difficulty in reaching level of intelligence of student nurses; they exhibit so little intellectual curiosity.

The hospital dietitians who had been working from two to four years were asked for suggestions for obtaining different or more educational experience in aims, ideals, methods, and practice, if they felt that such was needed. A variety of opinions were expressed, and suggestions made. The most frequently presented ideas are summarized:

(a) Need more or different courses in college in methods (seventeen replies).

(b) Require practice teaching in college (eighteen replies).

(c) More practice teaching during internships (thirty-four replies).

(d) Public speaking in college (four replies).

(e) More teaching methods, visual aids, demonstrations, and lectures during internships (three replies).

(f) Refresher courses in teaching methods and in nutrition for teaching dietitians (three replies).

These ideas may be illustrated by some quotations from the respondents themselves:

Public speaking should be required of all who will teach. . . .

More opportunity to teach under supervision while interning. . . .

Practice teaching should be done in student nurse classes, rather than in high school classes. . . .

Need education courses in college—but not educational psychology. . . .

Practice teaching should be a required course in college.

SUMMARY AND DISCUSSION

The study of the teacher-training component of the curriculum for hospital dietitians, has substantiated the belief prompted by a conviction developing from experience and observation, that the training in educational theory and practice received by prospective hospital dietitians is not commensurate with the importance or the magnitude of their teaching responsibilities.

It was shown that the average hospital dietitian devotes from one-half to three-fourths of her time to teaching, guiding, instructing, orienting, or supervising others. This may be done either formally or informally in (a) formal classes, (b) informal classes, (c) on-the-job training, or (d) as the opportunity arises. This would indicate that her major responsibilities are educational in nature.

An analysis of course content of the undergraduate and graduate programs for prospective dietitians, and the responses from the dietary department directors indicated that the training for the execution of these responsibilities appears to be inadequate, not only in formal educational experience, but in the development of the concept that the dietitian is a teacher. This deficiency in training for teaching is further emphasized by the fact that only one-fourth to one-half of the average hospital dietitians were considered to be successful as teachers by their department directors.

That the average dietitian who has been in the profession for just a few years is unaware of her own inadequacies as a teacher was illustrated by the responses of the majority who feel they are adequately prepared to teach. By adequate preparation, however, they may mean that they feel they have a sufficient knowledge of subject matter to teach. But knowledge about nutrition, about dietary problems, and about proper techniques in food purchasing, preparation, and service is no guarantee of success in translating this information into the interests and needs of patients, employees, and students. The numerous problems they list as arising from their teaching experiences, however, confirm the opinion that the average hospital dietitian does not know how to teach effectively. The problems presented are chiefly those which more or better educational training would help to solve or prevent.

Lack of interest in conveying information or knowledge to others has been selected by the department directors as one of the major causes for failure in teaching. This, too, is undoubtedly a manifestation of an inadequate background for teaching. The young dietitians are probably unaware of the importance of their educational duties and neglect to devote sufficient time or effort to the preparation and performance of them. Poor responses to their teaching efforts, or inability to see that any real benefits have been derived from their efforts may cause discouragement and disinterest. Perhaps attitudes toward teaching, guiding, instructing, and orienting would be entirely different if the stress during the years of preparation for dietetics was on learning in order to help others to learn, or learning in order to be able to motivate others to behave in a desired manner.

How to change or reconstruct the training programs for prospective hospital dietitians so that they would be more adequately prepared to meet the present and probable future teaching demands of the dietitian is a problem for consideration. Several suggestions have been made. The majority of the young dietitians have expressed themselves as believing that more practical experience in teaching would be the answer to most of their problems. Moreover, they feel that they should have this practice while they are interns. The department directors also have suggested that during the internship, more emphasis should be placed on educational theory and practice. Undoubtedly this is the logical place for training and experience in the type of teaching, guiding, instructing, and supervising they will do as practicing dietitians.

Concluding, however, that this is the answer to the problem of where to obtain more teacher-training does not actually solve the problem. It merely introduces a new one. The staff dietitians who are to

conduct the classes on teaching methods and aims, who are to supervise the experience in practice teaching, and who will demonstrate how to obtain interest and cooperation from patients and employees were not rated as successful teachers by their department directors. Can they be expected to train others to be successful? Eventually, this method may be the one of choice, but it does not seem to be fundamental enough to meet the present needs.

Other suggestions, not quite as frequently presented as the one for more training during internships, may be worthy of serious consideration.

Perhaps more emphasis at the undergraduate level as well as during the internship on the concept of the dietitian as a teacher, rather than as a highly skilled technician, would be advisable. Workshops and conferences on educational aims and methods conducted under the auspices of the American Dietetic Association might be a means of increasing the working dietitian's awareness of her needs and of the importance of thinking of herself as a teacher. The development of an internship or two, in which the emphasis is on teaching methods, techniques, and practice, to serve as a source of dietitians who could aid in the supervision of the training in teaching of other dietitians may be a worthwhile plan.

Perhaps one of the first steps toward the attainment of the goal of more and better education for all who come within the sphere of a dietitian is for her to learn to think of herself as a teacher. She should realize that her accumulation of knowledge and skills is not solely for the purpose of increasing her own technical efficiency. One of the primary objectives for wide and thorough knowledge of the principles as well as of the skills involved in the business of food service should be to equip the dietitian with the basic tools for teaching, guiding, instructing, and orienting others.

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Washington Is Yours

When you come to Washington in October, if you've never been there before, you're in for a new experience—a sense of pride of ownership. Don't be surprised if you find yourself surreptitiously testing a time-worn bannister to see whether it is firmly held, or frowning disapprovingly at marble stairs, hollowed by the tread of millions of feet.

Your heart will quicken with justifiable pride as you proceed on your tour of inspection.

Since it behooves even absentee owners to observe local custom, the following schedule of visiting hours is provided.

The Capitol—9 to 4:30 p.m.—except Sunday and holidays. Senate or House floors closed after 11:45 a.m.
Botanical Gardens—9 a.m. to 4 p.m.; Saturday 9 a.m. to 12 Noon.
Library of Congress—East of Capitol—9 a.m. to 10 p.m.; Saturdays 9 a.m. to 6 p.m.; Sunday 2 to 10 p.m.
Folger Shakespeare Library—Near Library of Congress 9 a.m. to 4:30 p.m.
Supreme Court—9 a.m. to 4:30 p.m.; Saturday 9 a.m. to 12 Noon.
National Gallery of Art—10 a.m. to 5 p.m.
Freer Art Gallery—9 a.m. to 4 p.m.
Corcoran Gallery—9 a.m. to 4:30 p.m.; Monday 12 Noon to 4:30; and Sunday 2 to 5 p.m.
National Museum—9 a.m. to 4:30 p.m.; Sunday 1:30 to 4:30 p.m.
Smithsonian Institution—9 a.m. to 4:30 p.m.; Sunday 1 to 4:30 p.m.
Washington Monument—9 a.m. to 4 p.m.; Sunday and holidays 12:30 to 4:30 p.m.
Jefferson Monument—all day.
Lincoln Memorial—all day.
Ford's Theatre (Lincoln Museum) 9 a.m. to 4:30 p.m.
White House—under repair.
Churches and other points of interest—see Washington Handy Guide.

For information concerning registration for Tour No. 6, an all-day tour of Washington, Alexandria, and Mount Vernon; for the flights over Washington, Arlington, and Mount Vernon; and for the all-day air trip to Williamsburg, Virginia, visit the Hospitality Booth at the Hotel Statler. Inasmuch as trips may be scheduled for Saturday and Sunday, October 14 and 15, and since a day's advance notice is required to make the necessary arrangements, it is suggested that registration be made upon arrival in Washington.

Anti-Peptic Ulcer Dietary Factor

(Vitamin "U") in the Treatment of Peptic Ulcer[1]

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RECENT scientific investigations of experimentally produced gastric and duodenal ulcers in animals suggest that some factor in food is related to the formation and healing of these ulcers (1–4). The possibility that a dietary factor plays some role in the genesis of gastric and duodenal ulcers in man has also been suggested, and consequently patients have been treated with a special type of dietary regimen which includes the use of this food factor (5–7). However, before considering the therapeutic application of a specific dietary substance in the management of human peptic ulcers, it is necessary to review briefly the present concept of the causes of peptic ulcer in man and the role of diet in this concept.

Many individuals are predisposed to the development of peptic ulcers. It is often stated that one out of every sixteen people in the United States will sooner or later suffer from this malady. The formation of their ulcers is dependent on two basic conditions. The *first* is the presence in the stomach of large amounts of acid gastric juice which contains the digestive ferment pepsin. The *second* is a lack of the normal resistance of the mucosa of the stomach or of the duodenum to the corrosive and digestive action of gastric juice. This lack of resistance of the mucosa is apparently related, at least in part, to a lack of an anti-peptic ulcer dietary factor. The deficiency may be due to an inadequate diet or to some metabolic disturbance which interferes with the utilization of an essential food substance.

In addition to these two basic, predisposing conditions, there are certain precipitating factors which can lead directly to the formation of an ulcer, providing one or both of the two fundamental conditions are present. Excessively hot, spiced, or coarse food and toxic drugs have for generations been considered etiologic agents. More recently, the importance of nerve tension and emotional strain has been stressed in relation to the formation of ulcers of the gastrointestinal tract. However, these psychogenic factors acting through the autonomic nervous system to cause a disturbance in the blood supply to the stomach and to the duodenum should never be considered the sole cause of ulceration. They act only as a trigger mechanism or a secondary precipitating factor in patients who are already susceptible to mucosal ulceration.

EXPERIMENTAL PEPTIC ULCER FORMATION IN GUINEA PIGS

The important relationship between diet and the formation of experimentally produced peptic ulcer in a laboratory animal, the guinea pig, has been studied (4). The results of this study form the basis of a new type of therapeutic regimen for man. Consequently, it is necessary to present the essential findings in animal experiments which led to the preparation of a diet for human consumption which contains the anti-peptic ulcer dietary factor, also designated as "vitamin U."

It is now possible to produce a high incidence of peptic ulcer in the stomach or duodenum of guinea pigs by experimental means. These ulcers develop when a guinea pig on a basic dry diet receives repeated injections of histamine in oil and beeswax (4). Once this method of producing ulcers in laboratory animals was developed, it became feasible to test certain modes of therapy on animals which can also be applied in the treatment of human patients.

Some experimental studies carried out before World War II (2, 3) indicated that fresh greens, milk, egg yolk, butter, and a few other materials might contain an anti-peptic ulcer factor. These same substances have been fed to guinea pigs in an attempt to prevent the development of histamine-induced ulcers. It was found that large amounts of fresh cabbage and fresh lettuce would protect the guinea pigs against the formation of peptic ulcers. Further studies showed that as little as 5 to 10 gm. fresh cabbage fed daily to each pig was often sufficient to prevent ulceration completely. Likewise, it was determined that approximately 5 cc. fresh cabbage juice would protect the animals. A number

[1] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, October 14, 1949.

of other fresh greens were also found to be protective. Some as yet unpublished experiments revealed that 10 cc. cow's raw milk partially protected guinea pigs against ulceration, but that pasteurized milk was not as effective in this respect and that fresh mother's milk was more protective than cow's milk.

All of the known vitamins and certain less well known food factors were tried as protective agents, and all were found wanting in protective effect except for large doses of ascorbic acid (8). The protective effect of ascorbic acid in relation to the development of experimental ulcers in guinea pigs is still being studied. However, it has been shown that certain food substances which contain little or no ascorbic acid, such as milk and vegetable fats, may be highly protective. Consequently, ascorbic acid alone cannot be considered to be the anti-peptic ulcer dietary factor.

An extremely important fact relative to the dietary content of the anti-peptic ulcer factor is the susceptibility of this factor to destruction by heat. Boiled cabbage juice, "formula heated cabbage juice" (heated to just below the boiling point for 10 min.) and cabbage juice pasteurized to 183°F. for 15 min. showed no protective activity when administered prophylactically to guinea pigs which had received histamine injections. Some evidence is accumulating that pasteurization of cabbage juice or milk to 145°F. for 15 min. also partially destroys the anti-peptic ulcer factor.

CABBAGE AS A SOURCE OF THE ANTI-PEPTIC ULCER FACTOR

Fresh cabbage heads and fresh cabbage juice are receiving extensive experimental study as a food source of the anti-peptic ulcer dietary factor. It has been demonstrated that the factor is also contained in cabbage greens as well as in the cabbage head. The content of this factor in fresh cabbage apparently varies considerably with the degree of freshness. Wilted cabbage contains considerably less, and cabbage heads and cabbage juice which have been kept at room temperature for two or three days lose some anti-ulcer potency. The active factor also varies with the variety and seasonal growth of the cabbages and apparently with the geographic locality (8). It seems probable that climatic conditions, such as the amount of rain, humidity, and sunlight, the composition of the soil, and the type of fertilization also affect the content of this factor in the vegetable. It is known that they tend to influence the amounts of ascorbic acid, vitamin A, and the goiterogenic factor (9) contained in vegetables.

Long periods of transportation, particularly in the absence of refrigeration, may lead to destruction of the factor, possibly by an oxidizing process. Badly wilted cabbages should not be used as a source either in leafy form or for their juice.

PREPARATION OF CABBAGE JUICE FOR CLINICAL USE

During the past fifteen months fresh cabbage juice has been widely used for the treatment of human peptic ulcer. Although many individuals have obtained and drunk the juice without any medical supervision, a number of patients have received treatment under a physician's direction. Because of the general interest in this form of therapy, many inquiries have been received concerning the best method of preparing and administering the juice. The instructions which follow will clarify this subject at least to some degree.

Only fresh green cabbage heads should be selected. Spring, summer, and late summer cabbages are suitable but winter cabbages, such as the Cannonball variety, are pale, brittle, and relatively juiceless. If only winter cabbages are available, they may be used, but it may take almost twice the weight of winter cabbage to produce the same amount of juice as is obtained from a fresh, succulent, green cabbage in the spring. Ordinarily, 4 to 5 lb. cabbage will readily produce 1 qt. cabbage juice.

There are three methods by which the juice can be satisfactorily obtained. The *first* and most efficient is by the use of an electrical, centrifuge-type juicer which expresses free juice, leaving the residual pulp. A number of these juicers are on the market. Most are rather expensive for individual use. A *second* method involves the use of an austerizer or liquefier which will chop the cabbage into very fine bits, yielding a purée-like substance. It is necessary to add 2 or 3 oz. water to the cabbage as "a starter" in order to promote liquefaction. The resulting purée contains all the fiber so that it is necessary to squeeze it through a cheesecloth to obtain a clear juice. A *third* method requires the use of a fine meat grinder or food chopper. The pulp-like form of the cabbage which is obtained by this means must also be pressed through cheesecloth to separate the fiber.

A preparation of dried or lyophilized juice has been used experimentally in the treatment of both animals and patients. It has been prepared in a manner similar to the preparation of blood plasma. It has not been very satisfactory because, in processing, from 50 to 100 per cent of the anti-peptic ulcer potency has apparently been lost. Nevertheless, some definitely protective effect has been demonstrated in at least three different preparations.

No frozen cabbage juice concentrates have as yet been prepared for trial use, but it has been repeatedly demonstrated in the laboratory that cabbage juice which has been frozen and preserved at approximately 0°C. maintains its anti-peptic ulcer activity for at least three weeks.

Although there is experimental evidence that cabbage fat contains the anti-peptic ulcer factor, no satisfactory cabbage concentrates or extracts have as yet been prepared for clinical use.

ADMINISTRATION OF THE JUICE

After considering the amount of fresh cabbage required daily to protect 350-gm. guinea pigs from ulceration, it was calculated from determinations of body weight that the average patient might require approximately 1 qt. cabbage juice daily as trial therapy to promote the healing of an active peptic ulcer. Although it is most satsfactory to prepare fresh juice for each feeding, it has been more practical to prepare the whole quart at one time or a pint twice daily. When part of the juice is not fed immediately, it should always be refrigerated until used. It is not desirable to keep the juice overnight because of the strong odor and flavor which it develops after standing a number of hours even at low temperature.

It has been found to be most practical to serve a patient a quart of juice in four or five individual feedings of 250 or 200 cc. each (8-oz. or 6-oz.). The juice should not be taken on an empty stomach but in conjunction with meals. Ideally it has been served five times daily, the hours being the middle of the morning with crackers, with the lunch, in the mid-afternoon with crackers, with the evening meal, and again about 8 or 9 o'clock with crackers. If the patient tolerates the juice well in the larger servings of 250 cc. each, four feedings daily of the juice will be sufficient, and the evening feeding will not be necessary.

The raw cabbage juice may be made more palatable for some individuals by using a mixture of 75 per cent cabbage juice and 25 per cent celery juice. Raw celery, both stalks and greens, has been found to be a good source of the factor. Additional tomato juice may be added as a flavoring. Also pineapple juice or citrus fruit juice added in amounts of 15 to 30 cc. per glass of cabbage juice may make the beverage more palatable for some patients. Pineapple juice has been found particularly serviceable in this respect.

Although in the experimental study of clinical cases, a heated diet has been used (7), this is not necessary except for the experimental use of this form of treatment. Ordinarily the cabbage juice can be added to whatever form of dietary regimen the physician feels is indicated for the patient. It has been found impractical to give both raw cabbage juice and milk at the same period of feeding.

DIFFICULTIES OF ADMINISTERING RAW CABBAGE JUICE

Actually little difficulty has been encountered in administering raw cabbage juice in the experimental treatment of patients with peptic ulcer. In a group of sixty-five patients, three were unable to drink the juice without vomiting; one of these stopped trying to drink the juice after five days and the experiment was considered unsatisfactory. In the other two patients who were vomiting, a plastic tube was successfully passed into the duodenum and the juice was administered through the tube for two and three days, respectively. After that time oral therapy was resumed without further vomiting.

It is noteworthy that some patients develop gas, abdominal distress, bloating, and more or less constipation during the first two to five days of juice therapy. These symptoms can usually be relieved by the judicious use of symptomatic alkali therapy and by therapy with laxatives, such as sodium phosphate and milk of magnesia. In three patients, juice therapy was omitted for one day because of pronounced constipation and abdominal discomfort. After the fifth day of treatment, digestive disturbances are uncommon except in those patients who readily secrete large amounts of highly acid gastric juice.

No patients have noted any late digestive symptoms or untoward effects from drinking the juice. Some patients have taken a quart of juice daily for as long as six to twelve weeks without discomfort. No evidence has been obtained that prolonged drinking of cabbage juice by patients has led to the formation of goiter.

RESULTS OF TREATMENT IN SIXTY-FIVE PATIENTS

During the past sixteen months sixty-five patients with peptic ulcer have been treated with a quart of cabbage juice daily and a diet which contained only cooked food. No medications were given routinely. This experimental regimen was carried out in the hospital in the majority of instances, but more recently a number of patients have been treated on an ambulatory status while living at home. Some of these have also continued to work while following the plan of treatment. In ten of the patients who have been studied to date, either their course of therapy was not satisfactorily completed or certain complications intervened so that the results of their treatment cannot be adequately evaluated. Of the fifty-five cases remaining, eleven suffered from gastric, forty-two from duodenal, and two from jejunal ulcers.

Improvement in these patients was judged on a basis of clinical relief of symptoms and on x-ray evidence of healing of an ulcer crater. All but three were symptomatically relieved in two to five days. The three who were not relieved were suffering from a chronic type of penetrating duodenal ulcer which led to operation in two instances. One patient with a gastric ulcer was symptomatically relieved but ultimately came to operation because of failure of his large ulcer crater to show any evidence of healing. The craters of ten other patients with gastric ulcer, which were studied by serial X-ray examinations, all healed rapidly. The healing time of the craters varied between 8 and 23 days with an average of 11.5 days.

Twenty-eight of the 42 patients with duodenal ulcer had ulcer craters which could readily be demonstrated by X-ray examination. The crater healing

time of these 28 patients varied between 7 and 23 days with an average time of 11.7 days. One of the two patients with jejunal ulcer showed a crater healing time of 8 days. In the second case the crater healing time could not be evaluated, but the patient's pain ceased the second day after treatment was started.

A control series of patients with peptic ulcer is also being studied to compare crater healing time in patients treated by "standard methods" of therapy with that of patients treated with cabbage juice therapy. In this series, the crater healing time has varied between 3 and 6 weeks on the average. In a series of cases recorded in the literature an average figure of 5 to 7 weeks for crater healing time is given. "Standard treatment" has consisted of various types of Sippy and bland diets, bed rest, regular alkali and anti-spasmodic drug therapy, and regular sedation.

This series of ulcer patients who are receiving cabbage juice therapy are a part of an experimental study which has not yet been completed. The results of treatment so far are encouraging. They indicate that human peptic ulcers, whether they are in the stomach, duodenum, or jejunum, tend to heal more rapidly when the patient is treated with cabbage juice than they do either normally or when the patient is treated with other forms of therapy. These patients are in no sense cured of their tendency to form ulcers but are only relieved from their individual attacks. At present, once these patients are relieved of their symptoms and show definite X-ray evidence of either complete crater healing or of improvement of the indirect signs of ulcer, they are placed on the following convalescent ulcer diet which includes raw vegetable juices.

EXPERIMENTAL CONVALESCENT DIETARY REGIMEN

Food Selection—With Liberal Use of Italicized Foods

Eggs:	Two or more daily, soft cooked, lightly scrambled, or poached 2 min.
Dairy Products:	*Milk*—1 pt. to 1 qt. daily, with or between meals. Cottage, cream, or processed cheese. Use *butter* and *cream* freely.
Meats:	Chicken, scraped beef, lamb chops, calves' liver, tender fillet steaks, sweetbreads, brains, white fish, tender lean roast beef or lamb, or bacon. Meats should be broiled, baked, boiled, or lightly fried. Avoid veal and pork. Avoid meat gravies.
Vegetables:	Mushrooms, peas, string beans, carrots, beets, asparagus tips, summer squash, chopped spinach, stewed tomatoes, or broccoli. Any others if puréed. Two *salads* daily made from fresh *lettuce*, *watercress*, *romaine*, *parsley*, *tomato*, *avocado* with olive oil dressing[2]. and, (if well tolerated) *cucumber*, *green peppers*, and cole slaw. One-half to 1 pt. *fresh vegetable juices* daily.
Fruits:	The following fruits if cooked or canned: peaches, pears, white cherries, apricots without skins, apples without skins, juices of allowed fruits if well tolerated. Orange or tomato juice, *ripe olives*, and two or three *raw bananas* should be taken daily. Fresh and frozen fruits allowed as tolerated when the patient is asymptomatic and at the physician's discretion.
Cereals:	Cereals without bran, such as farina, cornmeal, rice, oatmeal.
Potatoes:	Irish potatoes—baked, mashed, boiled, creamed, or scalloped. Avoid fried potatoes. Plain spaghetti, noodles, macaroni, or rice may be substituted for potatoes.
Bread:	Toast—white or Graham bread; plain crackers; waffles; and hot cakes.
Desserts:	Simple puddings, such as cornstarch pudding, Junket, custard, tapioca, and rice pudding; plain white, angel food, and sponge cake; plain ice cream; gelatin desserts; and white cookies. Avoid pies and pastries.
Sweets:	Sugar, honey, maple or corn sirup, clear jelly in moderation. Avoid jams or marmalades with skins or seeds.
Soups:	Cream soups made from vegetables listed above; oyster stew, bouillon, consommé, and clam broth if desired.
Beverages:	*Milk*, cocoa, chocolate, coffee with *cream*. *Eggnog*[3] three or more times a week with or between meals.

The following is a sample menu, using many of the foods listed above.

Sample Menu

BREAKFAST:	
Fruit	1 serving
Cereal (if desired) with *cream*	1 serving
Eggs (cooked 2 min.)	2
Bread or toast (if desired)	1 slice
Butter	1 pat
Beverage: *milk*, cocoa, chocolate, or coffee with *cream*	1 cup
MID-MORNING NOURISHMENT:	
Eggnog or *milk*	½ qt.
NOON MEAL:	
Soup (if desired)	1 serving
Meat	1 medium serving
Potato or substitute (if desired)	1 serving
Vegetable	1 serving
Salad with olive oil dressing	1 serving
Bread (if desired)	1 slice
Butter	1 pat

[2] Salad dressing recipe

Lemon juice	⅔ cup
Olive oil	1½ cup
Salt	2 tsp.
Sugar	2 Tbsp.

[3] Eggnog recipe

Eggs	2
Sugar	2 tsp.
Vanilla	½ tsp.
Cream (20 per cent)	½ cup
Milk	1 pt.

Dessert—*banana*	1 serving
Milk or *fresh vegetable juice*	1 glass
MID-AFTERNOON NOURISHMENT:	
Milk or *eggnog*	1 glass
EVENING MEAL:	
Soup (if desired)	1 serving
Meat	1 medium serving
Vegetable	1 serving
Salad (cole slaw or *ripe olives*)	1 serving
Bread	1 slice
Butter	1 pat
Dessert	1 serving
Fresh cabbage juice	1 or 2 glasses
EVENING NOURISHMENT:	
Milk	1 glass
Banana	1

CONCLUSIONS

The results of raw vegetable therapy of guinea pigs with histamine-induced peptic ulcers indicates that there is an anti-peptic ulcer dietary factor which is readily destroyed by heat.

Cabbage in the form of the head, leaf, or juice is only one source of this factor. It is also contained in many green vegetables, milk, butter, egg yolk, and certain other source materials.

The anti-peptic ulcer factor in cabbage apparently varies in its concentration with the variety of the cabbage, the season, the method of transportation, and the age of the vegetable after it is harvested.

The clinical use of the anti-peptic ulcer factor in the treatment of patients with peptic ulcer is still in the experimental stage and should be carried out under a physician's direction.

This form of anti-ulcer therapy has been carried out in a group of sixty-five patients and at present seems to offer promise as a beneficial therapeutic procedure.

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Homogenized Milk

Evidence that homogenization results in a lower nutritive value is not available. The process alters the physical state of the milk constituents but does not result in chemical changes. Assays for the various specific nutrients in milk before and after homogenization have not shown any significant differences. The process does increase the surface area of the fat particles and thus favors the digestion and absorption of fat. This may result in a better utilization of this nutrient by some persons. Homogenization by decreasing the oxidized flavor detectable in certain milk tends to improve palatability. In general, homogenization appears to be a beneficial procedure. These comments relate to pasteurized milk. Homogenized raw milk is not marketable because of the rapid development of rancidity.—*From Queries and Minor Notes. J. A. M. A. 143: 860 (July 1), 1950.*

ACTH Therapy

Within recent months therapeutic dietitians have increased their services to include the planning of special diets for patients being treated with the adrenocorticotropic hormone (ACTH). Information has been received by the American Dietetic Association from several dietitians indicating that these patients have enormous appetites. Although data on diet as related to ACTH therapy is limited, one interesting source of information on the nature of physiologic effects of the hormone is found in *The Journal of the American Medical Association* Vol. 143, June 17. In an article by P. F. A. Hoefer and G. H. Glaser (page 620), the following factors are listed: alterations in dextrose metabolism, interference with the acetylcholine cycle, water retention, disturbances in potassium balance, alkalosis, and hypertension. It is emphasized that powerful side effects may accompany the therapeutic achievements of pituitary adrenocorticotropic hormone; therefore, long-range planning is necessary when the compound is to be used in chronic diseases.

Dental Caries in Norwegian Children During and After the Second World War[1]

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DURING or after the first world war a distinct reduction in caries frequency in school children was observed in several countries: in Norway by Ramm (1), in Sweden by Bensow (2), in England by Wheatley (3), and in Germany by Wimmenauer (4). During the Spanish war Adler (5) found a similar condition in Spanish children. A comprehensive review on this subject has been written by Sognnaes (6).

From 1936 the Pedodontic Department of the Dental School of Norway had been carrying out systematic dental examinations on about six hundred pre-school children in some rural districts. When the war broke out in 1939, these studies were extended to cover also eight to nine thousand school children, seven to fourteen years old, with the help of several school dentists in different parts of Norway. All examinations were carried out by means of mirror and explorer. Until 1942 the whole mouth was examined, but later the right half of the mouth only. As shown in many other studies, and also in these, the caries occurrence is so symmetrical that a fair picture of total caries of the mouth may be obtained by multiplying the findings in the half mouth by two.

The data from the examination of the school children have been transferred to punch cards according to the Hollerith System.

The pre-school children were grouped only in age groups according to their chronological age, whereas the school children were grouped also according to the number of erupted permanent teeth and according to sex. In the study of school children, a distinction was also made between cities, villages, and rural districts.

The caries distribution was figured out (a) as caries-affected children, (b) as caries-affected teeth (DMF, or dmf for the temporary teeth = decayed, missing, and filled teeth) and (c) as caries-affected tooth surfaces (DMF surfaces).

[1] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, on October 14, 1949. Graphs included in this article are reprinted with permission from the *Proceedings of the Royal Society of Medicine* 42: 249, 1949.

[2] The author, a fellow of the Milbank Memorial Fund, wishes to express his appreciation to that organization for valuable statistical help in preparing data in this paper.

Only a few preliminary data will be given here as the whole material has not yet been worked out.

PRE-SCHOOL CHILDREN

In Figure 1 is demonstrated the decrease in per cent of caries-affected children, teeth, and tooth surfaces in three different age groups in two rural municipalities, Blaker and Fet. From 60 to 80 per cent of the total child population in most of the groups have been examined each year.

As will be seen, the caries frequency was very high in 1939 but has decreased considerably since 1944. In the youngest age group, 2½- to 3-year-old children, the per cent of caries-affected children has dropped from 75 in 1939 to 24.5 in 1945. The per cent of caries-affected teeth (dmf) has dropped from 22.7 to 4.5, and the per cent of dmf surfaces from 6.5 to 1.8. The per cent reduction amounts to 66, 80, and 72, respectively. In the age group four to five years, the corresponding reductions were 22, 64, and 80 per cent; in the age group six to seven years, we find the following figures for reduction: 5, 44, and 60 per cent. However, as will be seen in the youngest age group, all caries figures were still lower in 1946 than in 1945, but increased again in 1947. In the middle age group, the per cent of caries-affected children was a little lower in 1946 than in 1945, but the other caries figures were about the same. In 1947, however, all figures were higher than in the year before. The six- to seven-year group showed a distinctly different caries picture. Here, with a slight exception for per cent of caried-affected children in 1946, all the figures for 1946 and 1947 were lower than when the war ended. Examinations during 1948 and 1949 have demonstrated an increase in all figures for each year and in all groups. The maximum percentage reduction in caries-affected children, teeth, and tooth surfaces, counting the whole period, was as follows: 80, 87, and 80 for the age group 2½ to 3; 31, 64, and 80 for the age group 4 to 5; and 13, 58, and 76 for the age group 6 to 7 years.

The decrease in caries-frequency as well as the increase for 1948, based on the lowest values after the war, was statistically significant.

SCHOOL CHILDREN

In Figure 2 is shown the high increase in per cent of caries-free permanent dentitions in city-girls having exactly twelve erupted permanent teeth (corresponds to seven- and eight-year-old children). The change in the picture was seen already after the first year of war. The yearly increase in caries-free children was greatest during the first post-war year, but after that, the curve turns rapidly downward.

Corresponding to the increase in caries-free permanent dentitions, Figure 3 demonstrates the decrease in number of DMF permanent teeth in the same group of children. Here, too, a distinct change in the curve is noticed after one year, and the steepest part of the curve before the turn in this case was also from 1944-45 to 1945–46. From 1945–46 we find an increase in the caries figure comparable to the decrease in the preceding graph. The percentage decrease in DMF teeth until 1944–45 amounted to 29 and until 1945–46 to 41.

The number of girls represented in these two graphs was between 194 and 297 each year.

The number of caries-affected tooth surfaces in this group has not yet been calculated. However, in one school dental clinic cooperating in this study, Alexander (7) has reported in first grade children (mostly seven years old) a drop in DMF surfaces from 3.9 in 1939–40 down to 0.6 in 1945–46. This amounts to an 85 per cent reduction.

In Figure 4 is illustrated the decrease in DMF teeth in city-boys having twenty-eight permanent teeth (corresponds to thirteen- to fourteen-year-old boys). As will be seen, 13.1 teeth out of the 28

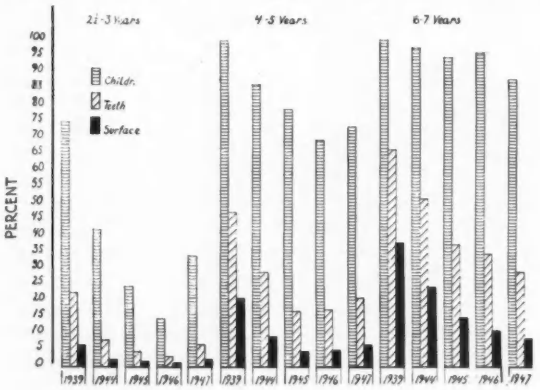

FIG. 1. *Percentage of caries-affected children, caries-affected teeth, and caries-affected tooth surfaces from the rural municipalities of Blaker and Fet.*

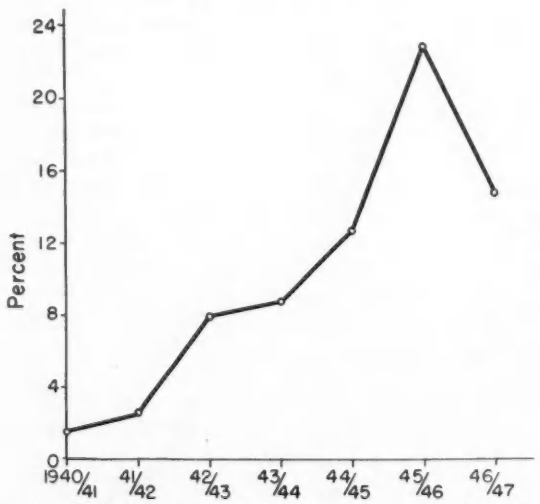

FIG. 2. *Percentage of caries-free permanent dentitions in urban girls having twelve erupted permanent teeth.*

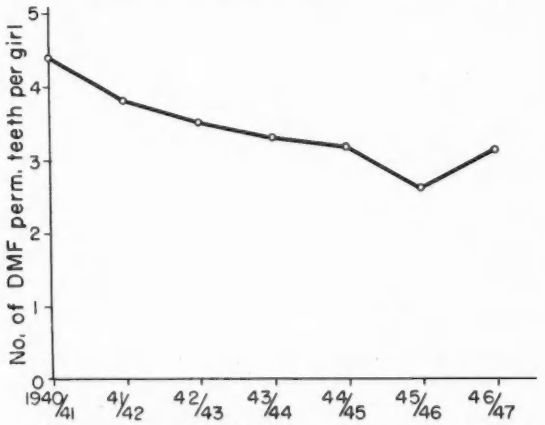

FIG. 3. *Number of DMF (decayed, missing, and filled) permanent teeth per girl in urban girls with twelve erupted permanent teeth.*

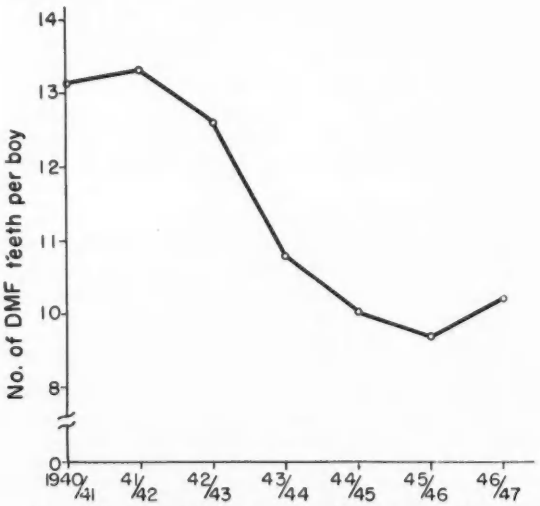

FIG. 4. *Number of DMF permanent teeth per boy in urban boys with twenty-eight erupted permanent teeth. In other groups of boys of the same age, the curve does not go up until 1946-47 or 1947-48.*

erupted, or 47 per cent, were affected by caries at the start. This figure dropped to 10 in 1944–45 (36 per cent DMF teeth) and decreased further to 9.7 in 1945–46 (35 per cent). The per cent reduction in DMF teeth amounted to 23 and 26 respectively. In this group, too, we see that the caries increased from 1945–46 to 1946–47 just as in the younger group of girls. The small increase in DMF teeth during the first year was probably of no significance and will not be discussed here. However, a similar increase was also found in the girls in the same age group.

In Figure 5 is demonstrated from the same group of boys the percentage distribution of boys according to the number of caries-affected permanent teeth. Only the following three years of examination are represented here: 1940–41, 1944–45, and 1946–47. As will be seen, the 1940–41 picture differed very much from the other two. It is clearly seen that the gravity of the curves for the two last years moved towards origo, that is, towards the lower caries groups. The percentage of caries-free boys was almost the same in these three years. Contrasted to 1940–41 when some boys had all the 28 teeth carious, in 1944–45 none had more than 26, and in 1946–47 the maximum was 24 carious teeth.

The number of boys represented in Figures 4 and 5 is between 279 and 476 per year.

As has been seen from these few graphs, the caries frequency had dropped to a degree never before observed. But, unfortunately, it has also been demonstrated that the caries curves have reversed their direction and are on the way to the pre-war levels.

WARTIME FOOD SUPPLIES IN NORWAY

Before we discuss the possible causes of the reduction in caries frequency in Norwegian children during and after the last world war, and the increase again during the last years, we must review the nutritional situation during the war. Nearly all food was rationed during the war.

Milk. Pregnant and nursing mothers and children up to six years of age were allotted ¾ liter of whole milk per day. Pregnant and lactating women had also the usual adult ration of ¼ liter skim milk. Children from six to sixteen years received 0.5 liter.

Cod-Liver Oil. Preference was given to pregnant and nursing mothers and pre-school children. School children also had access to it, but not as regularly as the "stress" groups mentioned. The overall use of cod-liver oil, however, was higher than before the war.

Cheese. This was seldom obtainable on the coupons, and the average amount per day was about 2.5 gm.

Fat. The ration of margarine and butter was 30 gm. daily as an average.

Beef and Pork. Meat was very scarce. In 1943 and 1944, the daily ration of beef was only 7 to 8 gm.

Potatoes. The ration was above 400 gm. per day.

Flour. The average ration was 200 gm. per day. Most of the time it was of 95 per cent extraction and from the fall of 1942 it contained 0.4 per cent calcium carbonate.

Sugar and Sirup. The daily ration, together with the sugar for canning, was 38 gm. (the sirup figured

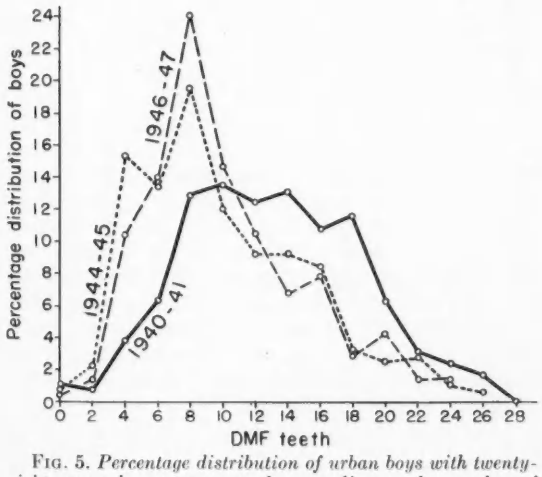

FIG. 5. *Percentage distribution of urban boys with twenty-eight erupted permanent teeth, according to the number of DMF permanent teeth.*

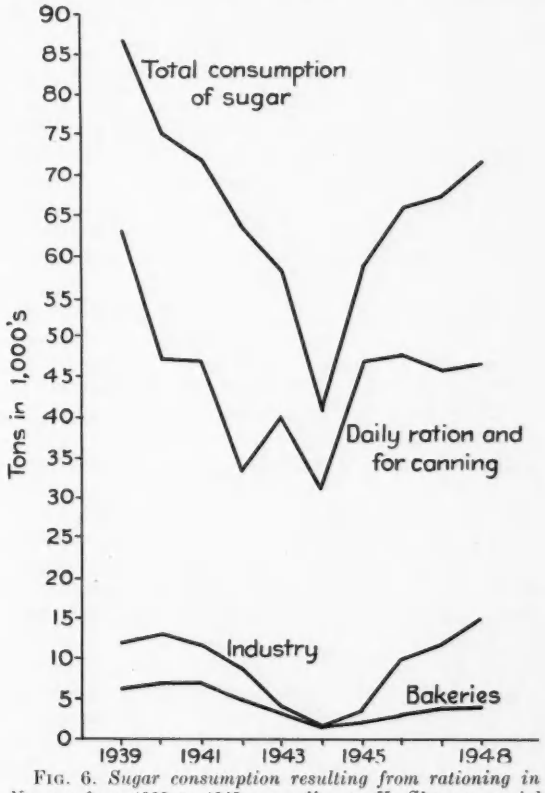
Tons in 1,000's
Total consumption of sugar
Daily ration and for canning
Industry
Bakeries
1939 1941 1943 1945 1948
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

FIG. 6. *Sugar consumption resulting from rationing in Norway from 1939 to 1948, according to H. Skaarer, social economist.*

TABLE 1

Condition of permanent teeth of seven-to-eight-year-old children of the village of Gjerpen, as reported by Alexander (5)

YEAR OF EXAMINATION	NUMBER OF CARIOUS SURFACES PER CHILD	YEARS OF ASSUMED PRE-ERUPTION MINERALIZATION
1939–40	3.9	1931–32 to 1937–38
1940–41	3.0	1932–33 to 1938–39
1941–42	2.3	1933–34 to 1939–40
1942–43	1.4	1934–35 to 1940–41
1943–44	0.9	1935–36 to 1941–42
1944–45	0.8	1936–37 to 1942–43
1945–46	0.6	1937–38 to 1943–44
1946–47	0.6	1938–39 to 1944–45
1947–48	1.2	1939–40 to 1945–46

TABLE 2

Condition of temporary teeth of six-year-old children in the rural municipalities of Blaker and Fet

YEAR OF EXAMINATION	PER CENT CARIOUS SURFACES	YEARS OF ASSUMED PRE-ERUPTION MINERLIZATION
1939	38	1931 to 1935
1944	25	1936 to 1940
1945	15	1937 to 1941
1946	11	1938 to 1942
1947	9	1939 to 1943
1948	14	1940 to 1944
1949	15	1941 to 1945

as sugar). The sugar ration to bakers and industrial concerns was constantly lowered during the war, so that the amount in 1944 was just one-fourth of what was used in 1939 for the bakeries, and one-eighth for the industry (Fig. 6). As a result, sugared cakes and cookies, chocolate, candy, marmalade, and so on, disappeared more and more from the market. During most of the war, candy was not available at all.

Fish. This was not rationed The average consumption has been calculated to be 300 gm. per day, mostly salted and dried fish.

Vegetables and Fruit. These, too, were not rationed. The consumption of vegetables, especially of carrots and turnips, was much higher than before the war, whereas the consumption of fruit was much less.

Summing up the dietary conditions for children up to fourteen or fifteen years of age, it may be stated that the caloric intake was sufficient up to six years, probably sufficient from six to twelve years, but deficient above twelve years. The total protein intake was sufficient, but very little meat protein was available. The fat intake was probably sufficient up to twelve years of age, but much too low later. The same was true for the carbohydrate intake. The amount of the different vitamins and minerals, except for iron after twelve years of age, should have been sufficient. This general characteristic is in the main in accordance with the result of household studies of seventeen Norwegian families in 1942 to 1945 reported by Ström.

The most pronounced changes in the diet during the age period from fetal life up to fifteen years were the radical decreases in meat and refined carbohydrates, including sugar and all kinds of sweets. As a compensation, more flour of high extraction, more potatoes and vegetables, and more fish were used. The daily intake of milk and cod-liver oil was probably more regular, as was the whole daily diet. The between-meal eating of cookies and sweets disappeared almost completely.

That the war diet was inferior to that before the war for the physical development of the children has been demonstrated in Oslo school children by Stoltenberg (9). From 1940 to 1945 a distinct decrease in the height and weight of eight- to fourteen-year-old boys and girls was found. In 1947, the curves went up again and even passed the values for 1940. No exact data are at nand for the pre-school children during the war, but one had the impression that they were not physically handicapped as were the children of school age. The emergence (eruption) of the permanent teeth was delayed in some groups.

DISCUSSION

In trying to give an explanation for the decrease in caries frequency during the war, it is natural to consider the two main factors in the caries picture: the *resistance of the tooth* and the *direct caries-producing agencies.*

Tooth Resistance

Is it possible to attribute the decrease in caries frequency to an increased resistance of the tooth? A higher resistance must depend primarily on better nutritional condition as far as the mineralization is concerned. According to the allowance for pregnant and lactating women and children up to six years of age, the mineralization of the teeth in the pre-eruptive period should have been better during the war due to the high intake of minerals and vitamins A and D. It is also true, generally, that the intake of protective foods by these groups was more regular and probably more abundant than before the war. Much of the refined carbohydrates, especially sugar, was replaced by more natural foods. In this connection, it is of great interest to remember the very interesting and important experiments on hamsters made by Sognnaes (10). He found that the susceptibility to dental caries was greater the earlier in the hamster's life the high-sugar diet was given, either to the hamster itself or to the mother. The highest caries score in the young hamster was found when the mother was put on the 67 per cent sucrose diet even before the gestation. The ratio was as 20:10:2 according to whether the high-sugar diet was introduced at the start of gestation, at the start of

lactation, or after weaning, that is, only directly to the offspring.

Special attention should be paid to the fluorine intake. From the increased consumption of salt water fish, the fluorine content of the food might have been increased. Preliminary data indicate, however, that the decrease in caries frequency in the farm district was of the same order as in the cities, and in the agricultural areas the fish consumption was not as high as in the cities. We assume, however, that the food condition as a whole was better for the farmers, and this might have compensated for an eventually lower fluorine intake. This question will be further studied.

An interesting question is: do we find any correspondence in time between the mineralization, the rationing period, and the decrease in caries? In Tables 1 and 2 is given some information about this. As will be seen from Table 1, which deals with the permanent teeth of seven- to eight-year-old children, a distinct decrease in the number of carious tooth surfaces was noticed by the examination in 1940–41. These teeth had a pre-eruptive mineralization period *before* the war, and before any rationing started. The year after, the decrease was still greater and the teeth in question also had a pre-eruptive mineralization period chiefly before any rationing could be fully effective. However, the lowest caries figures were found in teeth whose pre-eruptive mineralization occurred chiefly within the war period. But, the teeth with the longest pre-eruptive mineralization period during the rationing time, those examined 1947–48, showed a distinct *increase* in caries.

A similar picture will be seen from the temporary teeth (Table 2). In 1944, a pronounced decrease in per cent of carious tooth surfaces was found. These teeth had the pre-eruptive mineralization period before the rationing was fully effective. And, the lowest value, 9, found in 1947 does not correspond to the longest pre-eruptive mineralization during the time of the most effective rationing. The teeth examined in 1948 and 1949, which showed the high increase in caries, may be supposed to have benefited most from rationing during their mineralization.

Therefore, the decrease in caries-frequency during the *first* years of war does not seem to be accounted for by a presumably better pre-eruptive mineralization. However, the additional possibility of an increase in tooth resistance *after* the eruption of the tooth cannot be neglected. It is hard, though, to believe that such a high increase in resistance as one had to consider here should be laid down during the very short post-eruptive period of the permanent teeth described.

Direct Caries-Producing Factors

Let us now consider whether the change in environmental factors, which no doubt occurred, may explain wholly or partly the change in the caries picture. Unfortunately no bacterial studies have been made during or after the war, so no direct information can be given of this environmental factor. But, according to the close relationship between the sugar consumption and the acid producers in the mouth found by Jay (11) and Belding and Belding (12), one would assume a change in the bacterial flora. Such a relationship, however, is denied by other investigators, for instance by Boyd, Cheyne, and Wessels (13).

The sugar consumption, however, was greatly reduced during the war. As will be seen from Figure 6, the total consumption, as well as the amount for the daily ration and for canning, was markedly decreased from 1939, whereas the curves for the industry and for the bakeries do not show the reduction till 1942. Even though sugar rationing for daily family use started in 1939, it is probable that a large per cent of the families had stored a certain amount so that it would take some time before they were wholly dependent on the ration.

If the reduction in sugar, acting as an environmental factor, should be responsible for the decrease in caries-frequency, one would expect to find a decrease from six months to one year after the change in consumption. How is the time relationship between the reduction in sugar and the reduction in caries? From Table 1, it will be seen that the number of carious tooth surfaces in 1940–41 was reduced by 23 per cent and in 1941–42 by 40 per cent compared with the values for 1939–40. Figure 2 demonstrates a faint increase in caries-free permanent dentitions in 1941–42 and a marked one the following year. In Figure 3 is seen a distinct reduction in number of carious permanent teeth in 1941–42, and a still greater reduction the following year.

However, in Figure 4, representing the thirteen- and fourteen-year-old boys, is shown a very faint increase in number of DMF teeth in 1941–42, but a marked decrease in 1942–43. The reason the older children reacted later to the change in sugar consumption than the seven-year-olds may be ascribed to the post-eruptively older teeth in the former. The older the tooth is, the more resistant it is.

(Unfortunately no dental examinations were performed in pre-school children during the first years of war.)

Thus, a time relationship between the effective reduction in sugar consumption during the first years of war and the reduction in dental caries is clearly demonstrated. This relationship corresponds with the mode of action of an environmental factor.

However, as is seen from Figure 6, the sugar curves reached the lowest values in 1944, and from that year, they turned very sharply up again. In 1948 the curve for the industry had not only reached the prewar value, but had surpassed it. (A small portion of the industry products, however, are exported.)

Since the fall of 1945 there has been no rationing of cookies, pastries, marmalade, canned fruits, ber-

ries, and fruit juices. A small ration of chocolate and candy has been available for each person every month. In families, these rations are usually given to the children. Soon after the war white bread could be bought, but in the spring of 1946 the flour extraction was raised to 80 per cent and later to 85 per cent.

On the other hand, Figures 1, 2, 3, and 4, as well as Tables 1 and 2, demonstrate that the lowest caries values were found in 1945–46 and in some groups in 1947. The theory that it may take some months before a change in environmental factors influence the dental picture is commonly accepted today. Jay (11) and Belding and Belding (12) have found that the acid producers of the mouth may be temporarily decreased in number or action after a reduction in sugar intake, but are increased again after months on the usual diet. It is, however, hard to accept from an exclusively environmental standpoint the fact of a further decrease in caries frequency during the two to three years after the increase in consumption of sugar, sweets, and other refined carbohydrates. On the other hand, a further decrease in caries may be explained on the basis of an assumed increased resistance of the teeth. The teeth in question have had a pre-eruptive mineralization period partly during the war and thus may have benefited from the special war diet.

This presumably increased resistance, however, has not been able to withstand the action from the continuously greater consumption of sugar, sweets, and other refined carbohydrates and the between-meal eating. This is plainly demonstrated by the fact that teeth examined during 1947 and 1948, in spite of having had the longest war time period during the pre-eruptive mineralization, show a distinct increase in caries.

As to the causation of the change in caries frequency during and after the war, the following tentative conclusions may seem warranted:

(a) The decrease in caries frequency during the first years of war may have been caused by the drastic reduction in consumption of sugar, sweets, and other refined carbohydrates which decreased the effect of environmental factors.

(b) The continued yearly reduction in caries after the increase in refined carbohydrates may be attributed to a higher resistance of the teeth during the pre-eruptive mineralization caused by the special war diet.

(c) The increase in caries frequency (based on the lowest values) one, two, or three years after the war may be explained by a break in the balance between the resistance and the direct caries-producing factors. The environmental factors have overwhelmed the resistance.

OTHER STUDIES

Space does not allow me to discuss the various reports published on this subject. Therefore, only a brief mention will be given here.

Alexander (7), Schulerud (14), and Sognnaes (6) have also discussed the caries reduction and change in food consumption in Norway during and after the war.

Alexander (7) ascribes the decrease in caries mainly to an increased resistance and a lowering of the environmental factors, while Schulerud (14) stresses only the influence on the environmental factors by the sugar reduction. Sognnaes (6), comparing conditions during and after the last two wars, writes: "The time relationship between the wartime reduction in dental caries and the reduction in the use of refined carbohydrates (assuming there is a causative relationship) can best be explained by an indirect favorable influence on the development and maturation of the teeth, not by a change in the oral environment alone. The nature of the favorable influence is not known. It cannot be attributed to a uniform increase in the consumption of any previously demonstrated caries preventing food or food factor."

The other Scandinavian countries have also reported a decrease in caries frequency in school children during the last war. In Finland (Wilska [15] and Ekman [16]), with the worst nutritional conditions among the Scandinavian countries and with the greatest reduction in sugar consumption (reduced to one-third prewar value), the reduction in caries frequency was about the same as in Norway, or even greater. Wilska writes: "As far as Finland is concerned, the only nutritional factor capable of explaining the great reduction of caries incidence is the shortage of sugar."

In Denmark the nutritional condition was much better than in Finland and Norway. Milk and meat were not rationed. The sugar ration was higher than that in Norway, about 50 gm. per day, and pastry and cookies were available. The reduction in caries frequency was not as high as in Finland and Norway (Krohn and Pedersen [17]). Pedersen (18) writes: "The evidence accumulating from the aforementioned studies seems to bear out that a successful battle can be fought against dental caries by reducing the consumption of refined carbohydrates (refined sugar, white flour, sweets) and by replacing the calories thus removed by protective foods eaten in regular meals. On the other hand we are not entitled to point out any single food item as being responsible for either the presence or absence of dental caries."

Neutral Sweden had the best access to protective foods among the Scandinavian countries. Some food articles were rationed, but the ration was fairly high. Sandberg (19) states, on the basis of official data of the Swedish Ministry of Health, that, compared with the year 1940, the consumption of milk, fish, flour, bread, potatoes, and vegetables had increased during the war. The consumption of cheese, fat, beef, pork, sugar, sirup, and all kinds of sweets decreased. This change gave an increased intake of calcium, phosphorus, iron, thiamine, and vitamin D, a small de-

crease in vitamin A, and no change in calories, carbohydrates, and protein. The reduction in sugar, sirup, and candy from 1940–45 seems to have amounted to about 18 per cent. During 1942–43 there was a small reduction in the caries-frequency in Sweden, but during 1944 and 1945 this reduction was less. Sandberg does not draw any definite conclusion as to the cause of the decreased caries-incidence, but alludes to a combined effect of more protective foods and less refined carbohydrates.

Outside Scandinavia, reports on caries reduction have been published from England by Mellanby and Mellanby (20), the Channel Islands by Knowles (21), Switzerland by Roos (22), Belgium by Watry (23), France by Dechaume (24), Holland by Steijling-Lindeboom *et al.* (25), Italy by Schour and Massler (26), and in repatriated American prisoners-of-war from the Far East by Morgan *et al.* (27). All of these reports, except those of the Mellanbys (20) and Steijling-Lindeboom (25), stress the reduction in consumption of sugar (refined carbohydrates) as the most important change in diet and put this in a causative relationship, in one way or another, to the improvement in dental health. M. and H. Mellanby (20) attribute the caries reduction to the improved nutritional condition, and Steijling-Lindeboom and co-workers (25) allude to the delayed eruption of the teeth.

SUMMARY AND CONCLUSIONS

Reports are given on dental studies in Norway of between six and seven hundred pre-school children and between eight and nine thousand school children during and after the war. The number of caries-affected teeth dropped up to 50 per cent and the number of caries-affected tooth surfaces up to 80 per cent. The decrease in caries stopped one or two years after the end of the war, and a marked rise in the caries curve has later taken place.

A short discussion of the change of diet during the same period is given. The rationing system, as far as protective foods were concerned, gave preference to pregnant and lactating women and to children up to six years of age (the pre-eruptive tooth mineralization period). The consumption of sugar, sweets, and other refined carbohydrates as well as of meat and fat was greatly reduced. On the other hand the consumption of high extraction flour, potatoes, vegetables, and fish was increased.

From the preliminary studies it is concluded that the reduction in caries frequency was caused partly by a lowering of the direct caries-producing factors and partly by an increase in tooth resistance. The increase in caries frequency during the last two post-war years may be explained by the higher intake of refined carbohydrates which has counteracted and overwhelmed the tooth resistance.

These studies, as well as those reported on by K. U. Toverud (28, 29) and G. Toverud (30) confirm the idea that a dietary regimen should not be characterized as "optimal," "good," or "sufficient" unless its testing on children's teeth has given a satisfactory result.

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Nutritive Value of Raw Eggs

Whole eggs are considered easily digestible. Studies by M. S. Rose and G. MacLeod (*J. Biol. Chem.* 58: 369, 1923) on the behavior of egg white in the human alimentary tract indicated that the average coefficient of digestibility for the raw egg white was 83 per cent. The coefficient of digestibility for cooked egg white was 86 per cent. When the eggs were beaten, the utilization of the protein was improved slightly.

Raw egg white leaves the stomach rapidly and undergoes little digestion there. Egg white appears to contain an anti-enzyme which causes it to resist tryptic digestion. It is reported that heating destroys the anti-enzyme. This fact is advanced as a possible reason for the difference in digestibility of raw and cooked egg whites as noted in dogs (Rose, M. S., and Vahlteich, E. M.: *J. Am. Dietet. A.* 14: 593, 1938). Recent work has shown that raw egg white contains a factor which inactivates the vitamin biotin (Gyorgy, P., Rose, C. S., Eakin, R. E., Snell, E. E., and Williams, R. J.: *Science* 93: 477, 1941). Eggs, both raw and cooked, continue to be regarded as important and valuable foods.—*From Queries and Minor Notes. J.A.M.A. 143: 215 (May 13), 1950.*

Vitamin E Content of Foods

In the March issue of the *Journal of Nutrition*, Philip L. Harris, Mary L. Quaife, and William J. Swanson published a report on the "Vitamin E Content of Foods." Because of its timeliness and general interest, we are reprinting here, with the permission of the editor and the authors, one of the tabulations which pointed up this paper.

Vitamin E content of the average daily per capita food consumption in the U.S. in 1948 based on U.S. Department of Agriculture figures for food consumption

COMMODITY	AVERAGE CONSUMPTION	VITAMIN E INTAKE	
		Total tocopherols	α-tocopherol
	gm./day	*mg./day*	*mg./day*
Fats and oils, including butter	80.8	14.42	7.87
Grain products	212.5	2.85	1.78
Meat, poultry, and fish	196.4	1.17	0.99
Potatoes and sweet potatoes	142.9	0.87	0.84
Eggs	58.4	1.16	0.68
Dairy products, excluding butter	535.6	0.58	0.58
Green leafy and yellow vegetables	141.7	1.15	0.50
Dried peas, beans, and nuts	19.9	1.23	0.43
Citrus fruits and tomatoes	130.5	0.38	0.35
Other vegetables and fruits	290.8	0.17	0.12
Coffee, tea, and cocoa	23.6	0.13	0.06
Sugar and sirups	131.7	0.00	0.00
Totals	1,964.8	24.12	14.20*

* 59 per cent of total tocopherols.

Nutritional Status of Children

XI. Food Intakes and Biochemical and Medical Evaluations of Adolescent Boys[1]

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NUTRITIONAL status surveys present the problems of evaluating absorption, utilization, and dietary interrelationships as well as the influences upon them of past and present environmental conditions and emotional responses. During adolescence medical inspection is especially important in determining the state of nutriture because of the physical changes in basal metabolism, osseous development, and endocrine function which occur at that period. Since a single index of nutritional status has not been found, assessment by a combination of dietary, biochemical , sociologic, and medical criteria greatly enhances the value of the results of a survey.

Foregoing papers (1, 2) in this series have demonstrated two methods of evaluating the adequacy of feeding practices employed by child-caring agencies in relation to nutritional status. They also emphasized that those responsible for group feeding programs should obtain expert aid and counsel in planning for optimal use of funds in providing food of greatest nutritional value and that they should be prepared to adjust the feeding regimen to variations in food needs. The preceding paper (2) evaluated the diets of a group of adolescent boys at the Boys Republic by calculation of intakes of nutrients from records of the amounts of foods eaten by representative individuals. In this report the results of medical inspection and analyses of the blood and fasting samples of urine of all boys in the group are used to expand the evaluation of the nutritional status of the boys and to estimate the significance of dietary assessment by the weighed foods method.

EXPERIMENTAL PROCEDURE

During the study, individual height and weight measurements were obtained for sixty-one adolescent boys, of whom fifty-nine were fourteen, fifteen, and sixteen years old. Records were available of corresponding measurements obtained when the boys entered Boys Republic, from two weeks to seventeen months earlier. A physician[2] made a thorough medical examination of each boy, and blood samples were collected from finger punctures for the microdeterminations of hemoglobin, serum protein, vitamin A, carotenoids, vitamin C, and alkaline phosphatase (3–7). The same morning that blood samples were collected, 1-hr. fasting samples of urine (8) were obtained for thiamine, riboflavin, creatine, creatinine, and nitrogen analyses. Thiamine and riboflavin values for samples in which the creatinine or nitrogen results were questionable were excluded. Thiamine was determined by the thiochrome method described by Hennessy (9) and riboflavin by the Ferrebee (10) procedure with modifications (11).

RESULTS AND DISCUSSION

Stuart (12) has re-emphasized the individual variation in the growth of children during adolescence and the marked chronologic difference in the beginning and the end of adolescence and in the magnitude of the growth spurt. The Wetzel Grid (13) relates height and weight measurements and chronologic age, making it possible to evaluate both regular and irregular features of growth. By this criterion, among the fifty-nine boys no evidence of extreme underweight and only one instance of gross overweight was noted.

Data obtained by analyses of blood samples from the entire population at the Republic, including the twelve boys in the weighed food study, are presented by age groups in Table 1. From the values for the means and ranges it seems evident that the study groups reflect the patterns of their age group in the population, substantiating the premise that a small group may provide data on nutritive status which are sufficiently representative to use in the evaluation of a larger, untested group.

[1] Received for publication March 27, 1950.

[2] The authors wish to express their appreciation of the generous cooperation of the U.S. Public Health Service in making it possible for Dr. Keith H. Frankhauser to make the medical inspections at Boys Republic, and to Dr. Frankhauser for his participation and personal interest.

TABLE 1

Constituents of blood of boys, 14 to 16 years of age, at Boys Republic

GROUP	HEMOGLOBIN*			PROTEIN†			VITAMIN A†			CAROTENOIDS†			VITAMIN C†			ALKALINE PHOSPHATASE†		
	Number of subjects	Mean	Range	Number of determinations	Mean	Range	Number of determinations	Mean	Range	Number of determinations	Mean	Range	Number of determinations	Mean	Range	Number of determinations	Mean	Range
		gm./100 cc.	*gm./100 cc.*		*gm./100 cc.*	*gm./100 cc.*		*mcg./100 cc.*	*mcg./100 cc.*		*mcg./100 cc.*	*mcg./100 cc.*		*mg./100 cc.*	*mg./100 cc.*		*nitrophenol units*	*nitrophenol units*
Boys 14 Years Old																		
Total group	12	14.8	12.6–15.7	12	6.54	4.42–7.30	9	38	2–65	9	132	80–228	11	1.03	0.39–1.73	11	7.8	4.3–12.5
Study group	4	14.7	12.6–15.6	4	6.61	5.69–7.01	4	42	31–52	4	111	80–140	4	0.81	0.45–1.22	4	7.8	4.3–12.5
Boys 15 Years Old																		
Total group	27	14.8	11.7–17.1	26	6.80	6.23–7.20	18	37	1–129	18	137	48–302	24	0.89	0.36–1.40	24	7.3	3.8–13.1
Study group	4	15.2	14.2–17.0	3	6.98	6.88–7.11	2	71	13–129	2	236	170–302	4	0.74	0.42–1.07	4	9.0	5.0–13.0
Boys 16 Years Old																		
Total group	20	14.6	12.6–17.7	19	6.73	4.26–7.47	15	51	27–144	16	132	77–182	19	0.89	0.36–1.64	19	5.6	2.0–8.5
Study group	4	14.8	14.1–16.1	4	6.23	4.26–7.14	4	40	30–60	4	127	106–157	4	0.91	0.59–1.24	4	5.7	4.8–7.1
Boys of All Age Groups																		
Total group	59	14.7	11.7–17.7	57	6.72	4.26–7.47	42	42	1–144	43	134	48–302	54	0.92	0.36–1.73	54	6.8	2.0–13.1
Study group	12	14.9	12.6–17.0	11	6.57	4.26–7.14	10	47	13–129	10	142	80–302	12	0.82	0.42–1.24	12	7.5	4.3–13.0

* On basis of whole blood.
† On basis of blood serum.

Hemoglobin

It is generally accepted that hemoglobin values for boys and girls differ little throughout childhood, with sex divergence occurring sometime during adolescence. For boys thirteen to fifteen and fifteen to seventeen, Mugrage and Andresen (14) found mean hemoglobin values of 14.9 gm. and 15.3 gm. per 100 cc. blood, respectively, with the adult level attained at about age seventeen. In 1933, Goldhamer and Fritzell (15) reported hemoglobin values of 11.5, 11.8, and 12.4 gm. per 100 cc. blood for Michigan boys fourteen, fifteen, and sixteen years old; in Florida, Abbott and co-workers (16) reported values of 11.0, 11.2, and 11.0 gm., respectively, for boys of the same ages. The hemoglobin levels found in this study for fifty-nine boys fourteen to seventeen years old (Table 1) are consistent with those reported by the other investigators (15, 16).

The fact that hemoglobin levels in the present study exceeded those of other boys living in the same area (15) probably indicates that the iron intakes at the Republic were adequate. However, of the fifty-nine boys, nine (15 per cent) had hemoglobin levels below the 13 gm. per 100 cc. blood which Mack (17) considers desirable, probably reflecting previously unsatisfactory dietary patterns.

Serum Protein

The mean serum protein concentrations for boys of each age group (Table 1) fell within the range of 6.5 to 8.4 gm. per 100 cc. defined as normal by Bruckman, D'Esopo, and Peters (18). However, for five boys, values were below 6.0 gm.; values below 6.0 gm. were not found for any child in the other agencies participating in the surveys of nutritional status (4, 8). One boy who had been very heavy when admitted to the Republic and who had lost 16 lb. in nine months showed a level of 4.4 gm. per 100 cc. serum. Two boys (J.B., J.D.) whose serum protein values were 5.7 and 4.3 gm. per 100 cc. consumed daily 106 and 113 gm. protein, respectively (2). Since J.D. was a newcomer, he may still have been compensating for previous dietary inadequacies, and it is possible that excessive nitrogen demands made it difficult to maintain serum concentration protein.

Vitamin A

Eight of forty-two boys (19 per cent) had vitamin A levels below 30 mcg., although the mean for the group was 42 mcg. per 100 cc. serum. Bessey (19) considers 30 to 70 mcg. per 100 cc. serum as the normal adult range, and Jolliffe (20) found 20 to 30 mcg. to be the lower limit of normal. Because vitamin A is fat-soluble and stored in the liver, blood serum levels do not necessarily indicate nutritional status with respect to vitamin A. If, as Yudkin (21) has suggested, dietary sources are reflected in the serum, increased serum levels may occur during a re-alimentation regimen before adequate compensation for undernutrition has been made; it is also known that depleted stores of vitamin A are not readily detected by lowered serum concentration.

Carotenoids

Between 50 and 100 mcg. per 100 cc. serum has been suggested as the lower normal carotenoid level (22). For forty-three boys the mean carotenoid level was 134 mcg. per 100 cc. serum; for only one subject was there a value below 50 mcg. (Table 1). Since there is a direct relation between dietary carotenoids and blood serum level, the data indicate that the intakes of carotenoids were ample. The previous paper (2) noted that the calculated vitamin A intakes of the boys included a high percentage of carotenoids from vegetable sources. Failure to convert these carotenoids to vitamin A may explain the low vitamin A levels for 19 per cent of the boys.

Vitamin C

Blood levels of vitamin C have been shown to depend upon recent intakes of the vitamin (1, 23) and foods providing intakes of vitamin C from 75 to 100 mg. per day have been accompanied by blood serum levels between 1.0 and 1.4 mg. per 100 cc., while with intakes of 15 to 25 mg., levels of only 0.3 to 0.1 mg. have been found (23). Although the diet at the Boys Republic supplied less than the recommended quantities of citrus fruit, the mean serum vitamin C levels of the boys at each age level (Table 1) were above the normal adult value of 0.70 mg. per 100 cc. serum (24). Fruits and vegetables low in vitamin C contributed almost as much vitamin C as did citrus fruits (2), and for some boys a considerable amount of the vitamin C intake was derived from raw potatoes and apples eaten while working in the fields. Roberts, Blair, and Greider (25), by adding excessive amounts of pineapple juice to a diet low in vitamin C from citrus fruits, were able to maintain blood levels within the normal range.

Serum vitamin C values from a representative sampling of a population provide an indication of the adequacy of the amounts of vitamin C being supplied by the diet; however, this relationship may not apply strictly to each individual. For the twelve boys whose food intakes were weighed, mean vitamin C intakes ranged from 76 to 164 mg. per day, averaging 106 mg. (2). Their blood serum levels ranged from 0.42 to 1.24 mg. per 100 cc., averaging 0.82 mg. (Table 1). The mean of 0.92 mg. for the entire group would indicate adequate intakes; however, almost 40 per cent of the boys had values below 0.70 mg. per 100 cc. serum, of which 4 per cent were below 0.40 mg., which has been designated as the subnormal level (24, 26). One subject (R.S.) whose serum vitamin C level was 0.59 mg. during the week that he ingested, daily, an average of 164 mg. (2) of ascorbic acid, had been living at the Republic for a year and his low blood level may have been the result of faulty absorption or utilization, or an existing infection. Since blood samples were obtained in the fall when non-citrus foods rich in vitamin C are most plentiful, it is probable that spring values would be even lower. The unsatisfactory nutritional background of the majority of boys is a significant factor in these low vitamin C values. It is also in accord with the finding of Bessey and Lowry (27) in a very low economic group in New York City that 25 per cent of the children had blood vitamin C levels below 0.4 mg. per 100 cc. serum.

Alkaline Phosphatase

Alkaline phosphatase levels in the blood, used extensively in nutritional status studies as a measurement of vitamin D adequacy, change as a child grows. Bessey (28) found it difficult to correlate the phosphatase change at adolescence with such factors as the rate of bone growth or weight change, because at age thirteen phosphatase values for boys are dropping at the very time bone growth is rapid. He believes the change may be associated with some phase of sexual maturity, and in the male he found a peak around fourteen years, followed by a drop. Mulay and Hurwitz (29) reported that plasma phosphatase values rise from one to fifteen years and then decrease rapidly until the age of twenty-five. In Table 1, mean values for alkaline phosphatase of 7.8, 7.3, and 5.6 nitrophenol units (Table 1) for boys fourteen, fifteen, and sixteen years old, respectively, corroborate these findings. The decrease occurred at fifteen years. Although ten boys at the Republic had serum phosphatase values exceeding 8 nitrophenol units, a level interpreted by Bessey (28) as abnormal for ages eleven to eighteen, the medical inspection revealed no clinical signs of previous rickets.

Urinary Thiamine

The measurement of thiamine and riboflavin in urine has been widely used for the assessment of nutritional status. Means and ranges of the fasting hourly excretion of thiamine and riboflavin by all boys at the Republic are presented in Table 2. Previous ingestion of the vitamins is believed to have little effect on blood levels, since this test is preceded by a 12- to 14-hr. fast.

Papageorge and Lewis (30) concluded that the results of 1-hr. fasting tests can be employed to assess the thiamine status of large population groups and believe that 4 mcg. may be the critical level. Melnick and Field (31), using the 4-hr. fasting excretion test, placed the minimum at 15 mcg., a level which is in agreement with 4 mcg. per hour. In the present study, four boys (8 per cent) excreted less than 4 mcg. thiamine, seventeen boys (33 per cent) excreted less than 6 mcg., and only eleven boys (22 per cent) exceeded the 11 mcg. excretion level found by Johnson *et al.* (32) in men. For all boys, fasting excretions ranged from 3.3 to 14.8 mcg. (Table 2), emphasizing the wide individual variations. Mickelsen, Caster, and Keys (33) found that one "normal" person may excrete twice or three times as much

TABLE 2

Thiamine and riboflavin in 1-hr. fasting samples of urine from boys 14 to 16 years old

GROUP	NUMBER OF BOYS	THIAMINE		RIBOFLAVIN	
		Mean	Range	Mean	Range
Boys 14 Years Old					
		mcg.	*mcg.*	*mcg.*	*mcg.*
Total group	12	9.1	3.7–14.8	60.1	34.1– 85.3
Study group	4	10.1	6.0–14.6	75.8	66.7– 83.9
Boys 15 Years Old					
Total group	23	8.0	4.0–14.7	48.8	23.2– 88.5
Study group	3	7.9	4.3–12.6	50.2	43.4– 61.5
Boys 16 Years Old					
Total group	16	7.2	3.3–13.2	58.8	32.1–104.8
Study group	3	5.0	3.8– 5.8	47.2	35.9– 57.8
Boys of All Age Groups					
Total group	51	8.0	3.3–14.8	54.6	23.2–104.8
Study group	10	7.9	3.8–14.6	59.5	35.9– 83.9

as another "normal" person on the same intake. The mean fasting thiamine excretion values for boys at the Republic compared well with those for boys in four other Michigan agencies (34).

Urinary Riboflavin

The daily riboflavin intakes of the boys at the Republic ranged from 2.4 to 4.7 mg. with a mean of 3.6 mg. (2). For the majority, intakes exceeded the recommended allowance. The 1-hr. fasting riboflavin excretions for all boys ranged from 23.2 to 104.8 mcg. (Table 2). None of the boys fell below the 20 mcg. per hour, the level at which deficiency may occur (35). A mean fasting excretion of 54.6 mcg. per hour at the Republic exceeded mean riboflavin excretions of boys in four other Michigan agencies (34). Najjar *et al.* (36) found that over a six-week period, 1-hr. fasting values for twelve normal boys, ages ten to sixteen, averaged 12 mcg. on a synthetic diet containing only 0.70 to 0.90 mg. riboflavin daily.

Medical Examination Findings

The medical inspection records for the boys at the Republic (Tables 3 and 4), include classification and percentage of boys in groups according to physical appearance, body type, and subcutaneous reserve, together with positive physical findings. The physician reported that, based on results of careful inspection, the boys were in good condition nutritionally. However, some individuals had early, mild deficiency symptoms, and the photographs of the skin, gums, and tongue obtained with a Coreco Automatic Color Camera[3] showed conditions suggestive

[3] Coreco Research Corporation, New York City.

TABLE 3

Physical classification of sixty-five boys

General Appearance		
Good		86%
Fair		14%
Poor		0%
Body Type		
Ectomorph	1	0%
	2	5%
	3	26%
Mesomorph	4	21%
	5	45%
	6	3%
Endomorph	7	0%
Subcutaneous Reserve		
Quantity		
Group 0		0%
Group 1		46%
Group 2		46%
Group 3		8%
Group 4		0%
Type		
Fatty		100%
Watery		0%

of inadequate intakes of vitamin A, riboflavin, and vitamin C.

The most prevalent deviations from normal were associated with the eye, skin of the face, gums, and skeleton (Table 4). These manifestations may be the result of injury or disease entirely unrelated to nutritional causes. Darby, who demonstrated that typical B-complex deficiency symptoms responded to iron rather than B-complex therapy (37), has pointed out the dangers of diagnosing a single deficiency state on the basis of specific tissue alterations (38).

SUMMARY

On the basis of (a) nutrients calculated from weights of foods eaten by twelve representative subjects, (b) the microchemical determinations of nutrients in blood, and (c) nutritional medical inspection, fifty-nine adolescent boys in the care of a corrective institution were adequately nourished. Height and weight measurements were comparable with accepted standards for age, showing no evidence of extreme underweight and only one instance of gross overweight. The ranges of height and weight and average results of microchemical determinations of hemoglobin, serum protein, vitamin A, carotenoids, vitamin C, and alkaline phosphatase in the blood of all the boys and of twelve representative subjects indicated that the data for the selected group portrayed, in general, the nutritional status of the whole population and the adequacy of the boys' dietary. Considering age and weight, mean daily intakes of calories, fat, protein, and carbohydrate were adequate when compared to the allowances recommended by the Food and Nutrition Board.

TABLE 4

*Incidence of physical symptoms in sixty-nine boys**

SYMPTOM	PERCENTAGE OF BOYS		
	Mild symptoms	Moderate symptoms	Severe symptoms
EYES			
Blepharitis	8.7	0	0
Crusted eyelids	2.9	0	0
Palpebral conjunctiva			
Inflammation	1.4	0	0
Folliculosis	18.8	1.4	0
Bulbar conjunctiva			
Dryness (loss of luster)	4.3	0	0
Wrinkling	10.1	0	0
Thickening	1.4	0	0
Bitot's spots (number present)	0	0	0
Outer canthi lesions†	0	0	0
Other eye symptoms			
Circumlimbal plexis formation	1.4	1.4	0
Circumlimbal vascularization	1.4	1.4	0
Increased vascularization	1.4	0	0
SKIN OF THE FACE			
Suborbital figmentation	0	0	0
Naso-labial seborrhea	10.1	1.4	0
Acne	8.7	4.3	0
Follicular plugs	8.7	4.3	0
LIPS			
Angular stomatitis‡	0	0	0
"Purse string"	0	0	0
ORAL CAVITY			
Gums			
Gingivitis			
Local	11.6	1.4	0
Systemic (hygienic)	0	2.9	0
Hypertrophy	1.4	0	0
Spontaneous bleeding	0	0	0
Bleeding after slight trauma	0	0	0
Recession	0	0	0
Tongue			
Red (color)	1.4	0	0
Magenta (color)	0	0	0
Papillae filliform			
Atrophy	2.9	0	0
Hypertrophy	1.4	1.4	0
Papillae fungiform			
Atrophy	0	0	0
Hypertrophy	2.9	1.4	0
Swelling	0	0	0
Fissuring	1.4	0	0
NECK			
Goiter	11.6	0	0
SKIN—GENERAL			
Xerosis	7.2	0	0
Follicular hyperkeratosis	7.2	1.4	0
Atrophy	0	0	0
Perifollicular petechiae	0	0	0
Purpura	0	0	0
Dermatitis (symmetrical)	0	0	0
Hyperkeratosis	0	0	0
Hyperkeratosis knees	0	0	0
SKELETAL			
Pain over bones	0	0	0
Enlarged epiphyses	0	0	0
Beading of ribs	0	0	0
Harrison's groove with flaring ribs	8.7	1.4	1.4
Parietal bossing	0	0	0
Frontal bossing	0	0	0
Funnel or pigeon breast	8.7	0	0
Genu valgum (knock knees)	0	0	0
Genu varum (bow-legs)	0	0	0
Pot belly	0	0	0
Winged scapulae	0	0	0
NEUROLOGICAL			
Calf tenderness	0	0	0
Patellar reflex	0	1.4	0
Achilles reflex	0	0	0
Vibratory sense	0	0	0
Wrist drop	0	0	0
Food drop	0	0	0
No reflex	0	0	0
EDEMA	0	0	0

* The population of Boys Republic was larger at the time of the medical inspections than at the time the blood samples were obtained.

† Scarring, 2.9 per cent.

‡ Scarring, 1.4 per cent.

The mean hemoglobin levels (14.7 gm. per 100 cc.) of the boys compared favorably with those of other investigators. Mean serum protein (6.7 gm. per 100 cc.) and vitamin A (42 mcg. per 100 cc.) concentrations were within the normal ranges. The high intake of carotenoids was reflected in the average serum level (134 mcg. per 100 cc.). Fruits and vegetables low in vitamin C contributed almost as much vitamin C to the diet as did citrus fruits, and although the average value for blood serum (0.9 mg. per 100 cc.) was above the normal adult value, the levels of individuals varied widely. Although ten boys had serum alkaline phosphatase levels above 8 nitrophenol units and the mean was 6.8 units, medical inspection revealed no clinical signs of previous rickets.

The fasting hourly excretions of thiamine and riboflavin emphasized the wide physiologic variations among individuals around the average values

of 8.0 and 54.6 mcg., respectively, per hour. The urinary riboflavin values reflected the dietary intakes which were greater than those recommended, and none fell below the level where deficiency may occur. The medical inspection showed the boys to be in good condition nutritionally, although there were some early, mild deficiency symptoms suggestive of inadequate intakes of vitamin A, riboflavin, and vitamin C.

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Editorial

DR. MARGARET A. OHLSON RECEIVES AWARD

At the Annual Convention of the American Home Economics Association, W. A. Wentworth, of the Borden Foundation, presented a gold medal and a check for one thousand dollars to Dr. Margaret A. Ohlson, Professor and Head of the Department of Foods and Nutrition of Michigan State College, in recognition of her distinguished work in nutrition. Dr. Marie Dye, (center) retiring president of the American Home Economics Association, presented Dr. Ohlson as the 1950 candidate for the Borden Award. The Award is presented annually to a nutritionist selected by the American Home Economics Association for outstanding work in human nutrition.

Reports of the work conducted in Dr. Ohlson's laboratory have appeared in the JOURNAL of the AMERICAN DIETETIC ASSOCIATION and other professional journals. Among those appearing in the JOURNAL over the past few years are: basal metabolism of college women; dietary practices, nutritional status, and laboratory and clinical findings during weight reduction of obese college women; and studies of the protein requirements of women. In a fall issue of the JOURNAL, a report will appear on the metabolism of women with active tuberculosis.

Dr. Ohlson has shared in many of the professiona activities of the American Dietetic Association, and has served as Secretary of the national Association and Chairman of the Membership Committee for the past two years. It is particularly fitting at this time that Dr. Ohlson is to receive one of the highest honors that the Association can bestow at the Annual Meeting in Washington in October when she will become President-Elect.

CONVENTION MEETINGS CONVENIENTLY LOCATED

All of the daytime meetings of the A.D.A. convention, beginning Tuesday, October 17, except those of Friday afternoon, will be held at the National Guard Armory in Washington. From the moment you ascend its broad sweep of steps in the morning, until you leave your afternoon session, you will find all of the regularly planned activities of the convention centered under one roof.

The exhibits will be located along the wide corridors, and lunching facilities will be provided at the northeast corner of the building.

The evening meetings will be held at the Hotel Statler and the Mayflower, where the dinners are scheduled.

Current Comment

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PENELOPE S. EASTON[3]

Dietary Consultant, Nutrition Unit, Alaska Department of Health, Juneau

You may talk of enchiladas and chop suey with your patients. We in Alaska speak in terms of tipnuk[4] and salmonberries[5] in seal pokes[6]. However, in this so-called "last frontier," we face much the same problems you do, except that they are farther apart. Bethel Hospital is at least 900 air mi. from our office in Juneau! Is it any wonder that my first field trip was planned to last three months and lengthened into eight?

A visit to an institution in Alaska means arriving laden with briefcase and baggage. A good visitor is careful to bring a sleeping bag along in case there is no extra bed. Time, money, and weather all affect this visiting. One must plan to stay a jump behind freeze-up, or a day ahead of break-up floods, and allow for being weathered in a week now and then. One cannot wait for an invitation or even an answer to a letter stating probable date of arrival.

My New England reserve suffered quite a shock the first time I arrived unannounced. The ever-informing radio (like a party line in Vermont) had failed to reach the mission; my letter arrived three months later. Mother Antoinette met us as the plane landed on the frozen river. Her warm, "We are so glad to see you," showed the truest graciousness I have ever seen; the children grabbed our gear and helped us up the icy bank. More than an hour later I learned that they had no idea who Penelope Easton was nor why she was there! Nowhere could one find friendlier, nicer, more interesting people than those who share their homes and their wisdom with us "visiting firemen."

ALASKA

In Alaska's vast area, one-fifth the size of the United States, most of the people belong to one of four races. The Indians are found in the Southeast[7] and in the Interior, the Eskimos on the northern coasts, the Aleuts near the Aleutian Islands, and the white people in the larger centers. Language and customs vary greatly even among groups in the same areas. Seal oil in the Southeast is rendered differently from that in the North; in fact, it doesn't even smell the same. In many areas rain is far more common than snow.

The population is a transient one. In earlier times many of the native people were almost nomadic, traveling great distances to find game and fish. Today they are attracted to the larger towns by high wages. The white population is composed largely of people who have just come from "Outside" (the States) or who are ready to go back. Personnel in our institutions changes rapidly. Constantly there is need to train people new to the work or the Territory.

Prices are high, and the amount of money spent for food is a universal problem. Freight rates are high and sometimes, as during strikes, air freight must be used even for such staples as potatoes and flour. The wage scale is high, especially for those seasonally employed. Little price competition is possible with the scarcity of goods. Considering these factors, one can understand why eggs frequently sell for $2 a dozen! In many areas, food is received only once a year. One must experience running out of shortening in March to really understand the importance of these annual food orders. In many of the smaller villages the food comes largely from the land and sea. Here a poor whaling season may threaten a whole village with starvation.

NUTRITION TEACHING IN ALASKA BEGINS

Insurmoutable as these distances, high prices, and unusual food sources may seem, they are far better understood now than they were four years ago when Christine Heller, our Nutrition Consultant, started her work in the Territory. She and Mrs. Fohn-Hansen, the Home Demonstration Agent, did the first nutrition teaching in Alaska. They gathered some information about local foods and food cus-

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[1] "Cheechako": new to Alaska.

[2] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, on October 12, 1949.

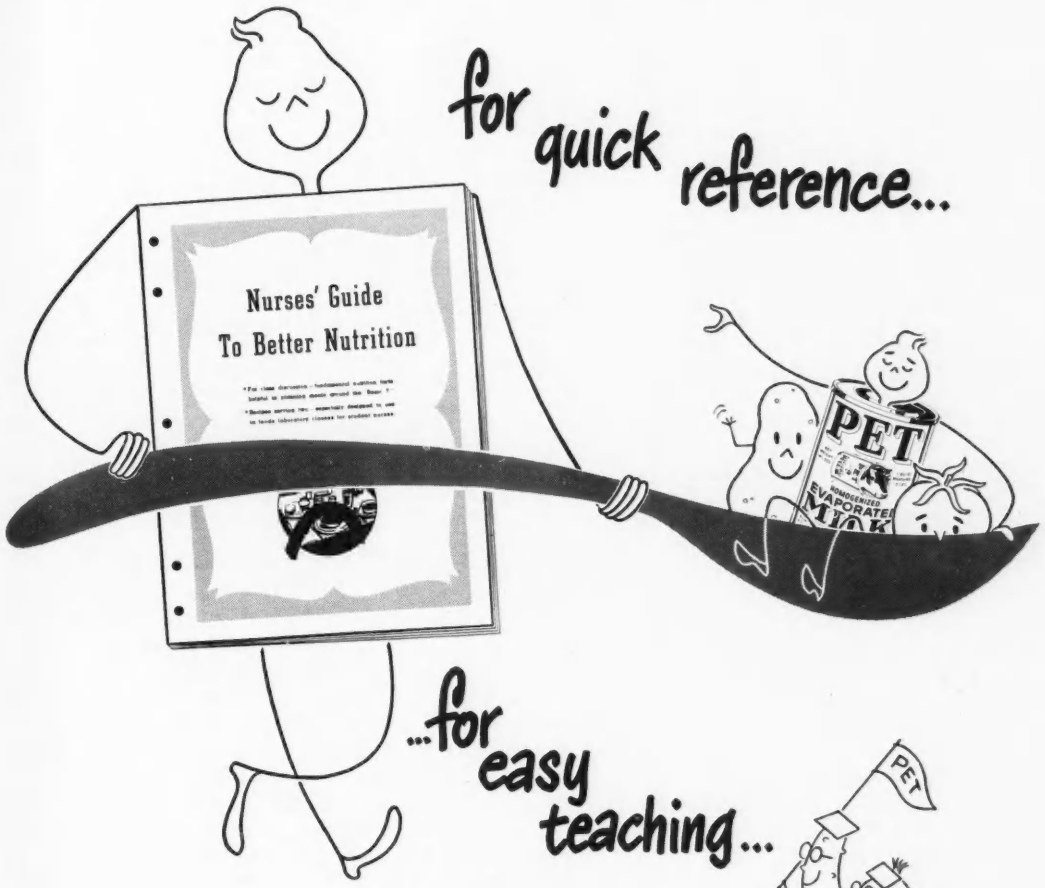
[3] Present address: Florida State of Health, Jacksonville, Florida.

[4] "Tipnuk": buried fish that is allowed to putrify.

[5] Salmonberry: a yellow, red, or orange berry similar in shape to a raspberry. (The berry often called salmonberry, which grows in the Arctic is really a cloud berry.) The salmonberry grows in the subarctic regions.

[6] "Seal pokes": skins of seals with the head and flipper areas tied off. The skin is turned inside out and used for storage of greens, fish, and seal oil.

[7] Alaskans divide the territory into three distinct areas: the southeastern part, known as the "Southeast," the large northwestern area or the "Interior," and the Aleutian section known as the "Chain."



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toms, and they have worked constantly to enlarge this information. Miss Heller has demonstrated to the Health Department and other agencies the need for basic food research. A small but significant beginning has given us proof that contrary to the prevalent rumor, Alaskan vegetables are not "all water" and do contain ascorbic acid. Some cloud berries have twice as much ascorbic acid as oranges. Helen Amos, the Associate Nutrition Consultant and I, however, find it a bit difficult to analyze diets containing caribou and herring eggs. Although we are aware that the great gaps in scientific knowledge limit our service, there is still much to be done with the knowledge we *do* have.

Two of the twenty-five hospitals have dietitians; several others have food managers with some training; in the others, the responsibility for the kitchen falls upon an already overburdened nurse.

Nearly half of these small hospitals are run by the Alaska Native Service.[8] They care for the native and white people in the area for many miles around. Last fall two of the chief nurses were confronted on their arrival with an all too common problem, the yearly requisition due in a week. Their only foods training was six weeks in a diet kitchen during nurses training some years ago. There were no written records of dates that the food ran out, no ordering standards, and the previous year's requisition had been made by an equally unprepared person. The food the nurse was ordering would arrive in the summer and must last until the boat arrived the next July. At last we now have in each hospital a food ordering guide based on the foods listed in the Native Service catalogue. It is a simple typewritten form with many limitations and it will need constant revision, but it will give the nurse some idea of how many thousands of pounds of reindeer she will need.

NEED FOR STAFF EDUCATION

My visits to these hospitals uncovered great gaps in our knowledge. Little did I guess that I would wish desperately that I could throw a side of reindeer on a meat block and cut it up with a wood saw and two rather dull knives. Of course, I had told butchers the cuts I wanted, had even hacked a bit myself, but that was with a meat chart and a power saw and a carcass that looked vaguely familiar. I had to ignore these mutilated sides of reindeer and hope that this year the new film strip and movie of our own amateur making will help to teach the proper way to cut reindeer steaks. This movie has been designed to fit into the training course to be given at three hospitals this year. In the classes an attempt will be made to reduce quantity cookery and kitchen sanitation to its simplest terms. The students will be cooks, aides, and women from the community.

The nurses keenly feel the need for patient as well as staff education. No one could blame the girl in Sitka who felt inadequate to instruct a patient from Wainwright, some 1500 miles away, in the foods he should eat to help him to stay well after he left the sanitarium. The field nurses and head nurses of different areas are cooperating in compiling a list of foods used by the people with whom they work. It will tell, for example, that in Wainwright the people eat "quak," which is thinly sliced frozen meat and is usually dipped in seal oil.

The government hospitals want and need far more service than we can give. They are anxious to have adequate follow-up for both staff and patient teaching. This year, partly as a result of the small amount of dietetic work I was able to do, they are requesting their own dietary consultant.

The non-government hospitals belong to religious orders or communities. Some are exceptionally well run, others are constantly burdened with personnel and budget problems. In some institutions a health department person is considered an inspector, or at best a meddling nuisance. A dietitian is not assured a welcome either. One nurse remarked that she remembered dietitians as peddlers of peanut butter soup and green mayonnaise, and she guessed a travelling one would be worse still.

Purchasing is a major problem in these hospitals. Cost studies are being made in several of the better run institutions to show the advantages of wholesale buying and to establish some sort of budgetary standards for food ordering in Alaska.

The need for a diet manual applicable to the Territory has been apparent all year. After observing the needs, I decided that such a manual should include three types of diets. The *Diet Manual for Alaskan Hospitals* is printed on sheets of three different colors. The diets on the white paper are for those areas where the food is similar to that used in the States. Those on blue paper are for the smaller towns where the food is largely from cans. Both were written to be suitable for outpatients as well as for cooks unfamiliar with hospital food. They were reduced to such terms as these: "Sick people need a good diet in order to get well. Well people need a good diet in order to stay well. The body needs many kinds of foods every day. These foods should be attractive, well served, and well prepared. Eating is fun and means far more than just putting food into the body —no one has found a machine or pill to take the place of a good cook."

On pink sheets are the diets for the people who do not speak English well and whose food comes largely from local sources. They sound like this:

"Eat all the good parts of the animals you catch. Livers, hearts, brains, and stomachs are good foods.

[8] Alaska Native Service is the Division of the U. S. Department of the Interior which is responsible for the welfare of the native peoples of Alaska until they have adjusted sufficiently to the white man's society to care for themselves.

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"Eat all the good parts of the fish you catch. Fish livers and hearts are good foods.

"Keep food clean. Do not allow it to mold. Keep it in a clean place.

"Wash your hands before eating.

"When you buy storebought foods:

"Buy spinach and carrots

"Buy canned tomatoes. . ."

CHILDREN'S HOMES

There are twenty-one children's homes in Alaska. Even excluding the three large Alaska Native Service Schools, over a thousand children are cared for in homes that are run privately, mostly by religious orders. The tremendous social problem is obvious, the problems of adequate nutrition are probably equally obvious. No one thinks that a children's home is the place to rear thousands of Alaska's future citizens, but an emergency exists. The help that I could give the homes was pitifully small. Many do a remarkably good job, in spite of untrained, overworked staff. Budgets and the conflicts of culture seriously affect their meal planning. I smile when I remember that the most appreciated contribution I made at a children's home was not in the feeding of the children at all.

I had been weathered in for a week. We had discussed the yearly order, talked about nutrition, and had a fine time. One day, the superintendent came into the kitchen where his wife and I were chatting while doing the dishes. He asked, "Do you know anything about dogs?" "A little, why?" I answered. "Well ours are logy and don't pull the sled like they should. We wondered if it could be their food." I know dogs are a vital part of an organization in the Interior, and a poor dog team could completely isolate the home from the tiny village 5 mi. away.

He went on, "Well, they have some, well-er other symptoms. I don't quite know how to put it." I laughed. "Oh, you mean their diarrhea. Yes, I noticed that when I rode behind them Sunday." You must admit that didn't take a very clever diagnostician. "What are you feeding them and how much?"

We examined the analysis of the mash. Everything that I had ever known about our baby cocker spaniels at home some fifteen years ago came into use. We decided that they were getting too much food and too much carbohydrate. We stopped the mash and fed them only dried fish. In the two days I was there they picked up a bit. The next week I met the superintendent in town. "Town" has 500 people and was about 20 mi. away. He ran down from the Northern Commercial store, "I've been looking all over for you. I wanted to tell you we have the best dog team around. Just look at them!" It is hard to miss the lesson of this animal experiment; perhaps the children will get more protein, too.

My work must be planned to make the best use of my time in the area. I visit the Alaska Native Service schools whenever possible. All of these seventy-five schools serve some sort of lunch or nourishment. Their teachers are delightful people who are eager for any help we can give. The six Territorial schools that have school lunch programs are also visited.

Around these institutions are communities and thanks to the great distances, I am allowed to be a community nutritionist as well as a dietary consultant. In one village we held classes simultaneously with a three-week nutrition unit in the school. The teachers and I were amazed to have the children ask to talk about food instead of having recess. Even the high school boys were interested when we talked in terms of what to take on a trapline.

The community classes held a few surprises, too. For the first three classes the mothers came and sat, silently, bundled in their parkas for the whole class. Yet they arrived promptly for every meeting in spite of the biting wind. Even odder was the appearance of ten fourth grade boys. I suspected that they had seen the demonstration material, for I am a firm believer in the cooking school technique, and I decided that they would not come again when they found that they got only a teaspoonful of the food. I was wrong. They too appeared promptly at every meeting. Gradually the mothers warmed up, off came the parkas, and out came the comments. The little boys laughed as heartily as we women when the doctor's wife told about making an apple pie without soaking the dried apples. The youngsters listened attentively to the food needed by pregnant women and enjoyed the antics of Mrs. Stocky and Mrs. Lanky, our too-fat and too-thin ladies.

Fifteen months in Alaska have taught me much. An introduction to fresh shee fish, a sour dough pot, and tender bear steaks are not to be forgotten. There is a tremendous amount to be learned and taught in Alaska. Many more nutritionists are needed in our agency and other agencies. Nowhere could a nutritionist find a greater challenge.

SUMMARY

A dietary consultant's work in Alaska as anywhere is one of understanding the problems and finding a practical solution whether this involves a cold night in a small plane on the tundra, driving a car with a chunk of ice in the fuel pump, or learning that "duodowacs" are the same things as rose hips. It means a compromise between trying to be everywhere at once and still giving a good lasting service to the areas covered. It means realizing that people in institutions are a part of the community and that they come from and will return to it. It means a chance to meet grand people and learn much. Yes, it may even include a 10-mi. rough tramp over pressure ridges of the Arctic Ocean to see a newly caught whale and watch its great mound of flesh be put in piles for many meals of fine eating.

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Book Reviews

Stern's Applied Dietetics. 3rd ed. Revised by Helen Rosenthal, Pearl C. Baker, and Wilma McVey, M.D. Baltimore: Williams and Wilkins Company, 1949. Cloth. Pp. 293. Price $5.

This book, originally written by Frances Stern, has been revised by her associates in the Boston Dispensary Food Clinic following plans made by Miss Stern before her death. In the foreword, suggestions are made that the book may serve equally well as a text book for the student in home economics and applied dietetics, as a teaching guide for the teacher and public health worker, for the nurse, and as a reference book for the physician and social worker.

The book is divided into four parts. Part I is devoted to the techniques of giving dietary instruction, largely as practiced in the Boston Dispensary. Such topics as daily food requirements, construction of the normal diet and of the various therapeutic diets with their underlying theories are discussed. Much emphasis is given to the taking of a detailed nutritional history, its significance and use. Teaching the patient about the normal dietary needs and the changes necessary for the therapeutic diets are presented. Several specific illustrations of the techniques used in interpreting special diets to the patients are explained in detail.

In Part II more than one hundred pages are devoted to numerous tables of food values and food exchanges. Several recipes are calculated for the food elements, vitamins, and minerals to illustrate the method.

In Part III, entitled "Dietary Outlines," is presented a comprehensive table indicating the relationships and deviations of the therapeutic diets from the normal. Adjustments which must be made are given. There follow descriptive outlines with headings such as "physiology," "pathological physiology," "laboratory data," "dietetic treatment," "foods," "education of the patient," and "abnormal conditions." This is repeated for each disease for which a therapeutic diet is planned. Because of the great detail of the outlines there is much repetition.

Part IV is entitled "Typical Diets and Menus." Calculations are given for the food elements, vitamins, and minerals for each diet outlined in Part III, along with plans for "Meals for the Day." These calculations are made for both an adult and a child, and menus are planned for three cost levels. Much space is given to tables and lists of "exchanges," which are an outstanding part of the basic teaching technique.

The sparcity of references given, is conspicuous, especially with the variation in theory and many controversial ideas underlying the dietary management for many illnesses. Little discussion on varying points of view is presented.

Contrary to the current trend of describing or naming a diet by its composition, here the diets are titled by the ailment or disease for which they are used. This may lessen their usefulness and add to the confusion and misunderstanding if used by some groups.

For persons not already well informed on the subject of food values and diets, the book may be somewhat complicated and misleading. For those who have a good basic knowledge of dietetics and its application, it will serve as an interesting reference book.—*Mame Dentler, Nutritionist, Northwestern University Medical School, Chicago.*

The Fireside Cook Book. By James A. Beard. New York: Simon and Schuster, 1949. Cloth. Pp. 322. Price $5.

Glorious illustrations, modern comic drawings, and instructional charts in a humorous vein make this a cook book to *read*. Perhaps that is why the title, *The Fireside Cook Book*.

Mr. Beard, an Associate Editor of *Gourmet Magazine*, obviously is well traveled in the field of fine foods. Herb and seasoning charts, which would be essential for many not so well versed in the unusual, introduce his book.

There are inconsistencies. For example, all the recipes for cakes are for the "old method," with no directions for "mix" methods. However, the author begins the hot bread section with a recipe for a basic mix from which can be prepared biscuits, muffins, pancakes, and nut bread.

No attempt is made to present a complete source of recipes. Those which are given, however, follow the pattern of a basic recipe with numerous possible variations. All show a strong continental flavor, particularly from France and Italy. In all, there are 1217 recipes.

Helpful to many will be the detailed section on wines and liquors. Complete menus and recipes for a dinner typical of each of seven nationalities make this section a good source of entertainment suggestions.

An expensive book as cook books go, *The Fireside Cook Book* would undoubtedly prove its worth many times to the new cook as well as the gourmet.—*Virginia Monahan Bayles, Boulder, Colorado.*

Geriatric Medicine: The Care of the Aging and the Aged. Edited by Edward J. Stieglitz, M.D., F.A.C.P. Philadelphia: W. B. Saunders Company, 1949. Pp. 773. Cloth. Price $12.

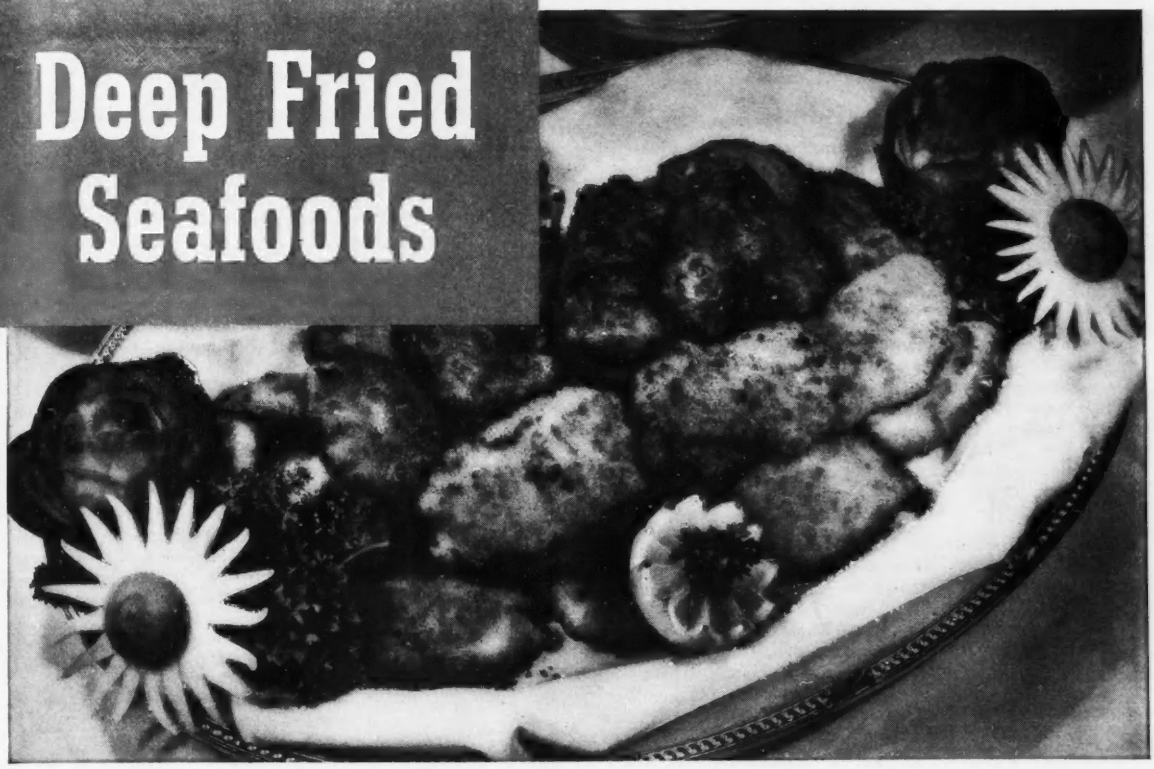
The sub-title, "The Care of the Aging and the Aged," is an effective statement of the point of view presented and amplified by Dr. Stieglitz and the forty-six co-authors in chapters devoted to their specialities. Dr. Stieglitz, who was the first consultant on gerontology with the U. S. Public Health Service, is a pioneer in the field.

Although the book is primarily for physicians, many parts will be helpful to all concerned with the problems of aging. The first seven chapters in the section, "General Considerations," giving the foundations and principles of geriatric medicine, with the normal physiological, anatomic, and mental changes of aging and the social and economic implications, are to be recommended to this large group. The material is presented in a pleasing style.

The group concerned with feeding the aged will appreciate the emphasis on normal nutrition throughout the book. A statement of the specific foods required for good nutrition is given at the end of the chapter entitled, "Malnutrition," and the authors' points of view toward normal nutrition are well stated in the chapter on "Medical Care of the Normal Aged."

Diet therapy for the usual conditions thus treated is given with the same emphasis on the normal. Some cautions are included relative to the amount of change in food habits to be expected from the aged and the resulting success of dietary treatment. The chapter on diabetes is particularly interesting because of the material included on the increased incidence of this disease in older people.—*Helen Brecht, Home Economics Consultant, Illinois Public Aid Commission, Chicago.*

Deep Fried Seafoods



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All meeting unless otherwise specified will be held at the National Guard Armory

Saturday, October 14

1:00 p.m.—CONFERENCE OF DIRECTORS OF APPROVED INTERNSHIPS, Hotel Statler

Sunday, October 15

9:00 a.m.—CONFERENCE OF DIRECTORS OF APPROVED INTERNSHIPS, Hotel Statler

Monday, October 16

9:00 a.m.—REGISTRATION, Hotel Statler
9:00 a.m.—MEETING OF THE HOUSE OF DELEGATES, Hotel Statler—Fern W. Gleiser, *Presiding*
12:00 noon—BUFFET LUNCHEON (for delegates only), Hotel Statler
7:00 p.m.—WELCOMING BUFFET AND FASHION SHOW, Mayflower Hotel—Anne Stewart Miller, *Presiding*

Tuesday, October 17

8:00 a.m.—BREAKFAST MEETING, HISTORY OF A.D.A., Hotel Statler—Anna Boller Beach, *Presiding*
9:00 a.m.—REGISTRATION AND EXHIBITS OPEN, National Guard Armory
10:00 a.m.—OPENING MEETING—Elizabeth Perry, *Presiding*
Food—An International Concern, Hazel K. Stiebeling, Ph.D., Chief, Bureau of Human Nutrition and Home Economics, U.S. Department of Agriculture
Employment Problems of Older Workers, Ewan Clague, Ph.D., Commissioner, Bureau of Labor Statistics, U.S. Department of Labor
12:00 noon—LUNCHEON MEETING, ACADEMIC REQUIREMENTS COMMITTEE, Mayflower Hotel—Margaret A. Ohlson, Ph.D., *Presiding*
1:00—CONFERENCE ON DIABETIC CAMPS—Barbara A. Ruby, *Discussion Leader*
1:00—CONFERENCE ON EQUIPMENT SPECIFICATIONS—Clarice Gullickson, *Discussion Leader*
2:00 p.m.—NUTRITION AND GERIATRICS—Marguerite L. Pettee, *Presiding*
Psychological Factors Relating to the Feeding of the Aged, Wilma T. Donahue, Ph.D., Research Psychologist, Institute for Human Adjustment, University of Michigan
Observations from a Preliminary Survey of Institutions for the Aged, Vera W. Walker, Consultant on Standards of Assistance, Florida State Welfare Board
2:00 p.m.—FOOD ADMINISTRATION—Helen L. Gillum, Ph.D., *Presiding*
Hidden Costs within the Dietary Department, Fern W. Gleiser, Professor of Institution Management and Economics, School of Business, University of Chicago
Institutional Food Costs, Robert C. Proffitt, Manager of Food Stores and Food Buyer, Pennsylvania State College
3:30 p.m.—BUSINESS MEETING OF MEMBERS OF A.D.A.—Elizabeth Perry, *Presiding*
6:00 p.m.—DINNER MEETING, PUBLIC RELATIONS, VOCATIONAL GUIDANCE, AND PROFESSIONAL EDUCATION CHAIRMEN, AND A.D.A. PUBLIC RELATIONS AREA CHAIRMEN, Mayflower Hotel—Regina Frisbie, *Presiding*
6:00 p.m.—ALUMNAE DINNERS
8:00 p.m.—PANEL DISCUSSION ON DIETARY HISTORY METHODOLOGY, Mayflower Hotel—Helen S. Mitchell, Ph.D., *Presiding*
Moderator:
William J. Darby, Ph.D., M.D., Professor, Department of Biochemistry and Director of Nutrition, Vanderbilt University School of Medicine
Panel Members:
Icie Macy Hoobler, Ph.D., D.Sc., Director, Research Laboratory, Children's Fund of Michigan
Elmira Blecha, Instructor in Dietetics, Department of Internal Medicine and Assistant Director of Dietetics, University Hospital, University of Michigan
Bertha S. Burke, Assistant Professor, Department of Maternal and Child Health, School of Public Health, Harvard University
Ercel S. Eppright, Ph.D., Head, Department of Foods and Nutrition, Iowa State College
Helen A. Hunscher, Ph.D., Head, Department of Home Economics, Western Reserve University
Miriam E. Lowenberg, Ph.D., Nutritional Supervisor, Rochester Child Health Institute, Rochester, Minnesota
Charlotte M. Young, Ph.D., Associate Professor of Medical Nutrition, Cornell University
8:00 p.m.—MEETING OF OFFICERS OF STATE ASSOCIATIONS, Hotel Statler—Fern W. Gleiser and Lillian S. Coover, Ph.D., *Presiding*

Wednesday, October 18

8:00 a.m.—BREAKFAST MEETING, PLACEMENT BUREAU BOARD, Hotel Statler—E. Evelyn Smith, *Presiding*
9:00 a.m.—REGISTRATION, National Guard Armory
9:00 a.m.—CLINIC TRIP, Georgetown University Hospital (limited to 70 persons)—Martha Ann Bowling
9:00 a.m.—CONFERENCE OF COLLEGE AND UNIVERSITY HOME ECONOMICS FACULTIES, FOOD SERVICE DIRECTORS, AND DIRECTORS OF APPROVED INTERNSHIPS—Ercel S. Eppright, Ph.D., *Presiding*
Objectives and Experiences Provided by Dietetic Internships, Mary W. Northrop, Chief Dietitian, King County Hospital, Seattle; and Wintress Dalbey Murray, Nutrition Adviser, Medical Department, Eastman Kodak Company, Rochester, New York
Present Trends in Home Economics Education, Florence A. Fallgatter, Head, Department of Home Economics Education, Iowa State College
Panel of Dietetic Interns—Our Professional Education, Its Adequacies and Its Inadequacies. (Speakers to be announced)
Panel Discussion on Academic Requirements—Margaret A. Ohlson, Ph.D., and Committee
10:00 a.m.—CHILD HEALTH—Marjorie Heseltine, *Presiding*
Horizons for Children, Leona Baumgartner, M.D., Ph.D., Associate Chief, Children's Bureau
Observations in Eastern Europe during 1948, Henry F. Helmholz, D.Sc., M.D., Chief Consultant, Midcentury White House Conference in Children and Youth
Relation of Vitamin B_{12} in the Treatment of Simple Growth Failure in School Children, Isabel Smith, Director, Children's Fresh Air Camp
10:00 a.m.—FOOD TECHNOLOGY—Winifred H. Erickson, *Presiding*
Potentially Hazardous Chemicals in Foods, Herbert

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Flavor Speaks for Quality, Ernest C. Crocker, Arthur D. Little, Inc.

Present Status of Freezing and Deep Freeze Storage of Natural and Processed Foods, Mary Dodds, Ph.D., Head, Department of Foods and Nutrition, Pennsylvania State College

12:00 noon—LUNCHEON MEETING, JOURNAL BOARD, Mayflower Hotel—E. Neige Todhunter, Ph.D., *Presiding*

12:00 noon—ALUMNAE LUNCHEONS

1:00 p.m.—MEETING OF STATE FOOD ADMINISTRATION SECTION CHAIRMEN—Marion D. Floyd, *Presiding*

1:00 p.m.—MEETING OF STATE PROFESSIONAL EDUCATION SECTION CHAIRMEN—Ercel S. Eppright, Ph.D., *Presiding*

1:00 p.m.—CONFERENCE ON PURCHASING SPECIFICATIONS—Cora E. Kusner, *Discussion Leader*

1:00 p.m.—CONFERENCE ON DECORATION AND SELECTION OF FURNISHINGS FOR FOOD SERVICE DEPARTMENTS—Mildred H. Trimble, *Discussion Leader*

1:00 p.m.—PUBLIC RELATIONS AND VOCATIONAL GUIDANCE WORKSHOP—Ruth Roth, *Presiding*

Writing with the Light Touch, Ida Jean Kain, Newspaper Columnist, King Feature Syndicate

Radio and Television Presentations, Elinor Lee, WTOP, The Washington Post Station

(Another speaker to be announced)

3:00 p.m.—COLLEGE AND UNIVERSITY FOOD SERVICE—Mildred Baker, *Presiding*

What Can College Food Service Contribute to the Total Educational Program? Mildred Jones, Manager, Women's Residence Hall, Michigan State College

Principles of Student Food Service Employee Relationships, Theodore M. Rehder, Director, Dormitory and Dining Services, University of Iowa

Discussants:

Martha F. McBride, Administrative Dietitian, Halls of Residence, University of Indiana

Maerice E. Capen, Dietitian, Wellesley College

(Other discussants to be announced)

3:00 p.m.—SCHOOL LUNCH—Abby L. Marlatt, Ph.D., *Presiding*

Contribution of the School Lunch to the Nutrition of Children, E. Neige Todhunter, Ph.D., Head, Department of Foods and Nutrition, University of Alabama

Educational Aspects of the School Lunch Program, Elizabeth S. Avery, Ph.D., Health Education Consultant, American Association for Health, Physical Education and Recreation.

Nutritive Value of the School Lunch as Served, Milicent Hathaway, Ph.D., Nutrition Specialist, Food and Nutrition Division, U.S. Department of Agriculture

Lunchroom Administration in Seventy-Four Schools, Frances Welch, Director of School Lunchrooms, Dallas Independent School District

3:00 p.m.—DIABETES AT THE MID-CENTURY—Corinne Robinson, *Presiding*

Why Detect Diabetes? Hugh L. C. Wilkerson, M.D., Chief, Diabetes Branch, U.S. Public Health Service, Boston

A Program for Teaching Diabetic Patients, Marion E. Nichols, Chief Nutritionist, Diabetes Branch, U.S. Public Health Service, Boston

The Simplified Method for the Calculation of Diabetic Diets, Doris Johnson, Home Economics Department, University of Wisconsin

7:00 p.m.—EXHIBITORS' DINNER, Mayflower Hotel Ballroom—Florance B. King, Ph.D., *Presiding*

Thursday, October 19

8:30 a.m.—MEETING OF THE HOUSE OF DELEGATES, South American Room, Hotel Statler—Fern W. Gleiser, *Presiding*

10:00 a.m.—PROFESSIONAL EDUCATION—Alice Biester, *Presiding*

Democracy as a Way of Life, George F. Zook, Ph.D., President, American Council on Education, Washington, D. C.

The Place of Evaluation in a Professional Education Program, Paul L. Dressel, Ph.D., Chairman, Board of Examiners, Michigan State College

10:00 a.m.—PERSONNEL RELATIONSHIPS—Alta B. Atkinson, *Presiding*

Basic Facts Underlying Human Behavior, Nina Ridenour, Ph.D., Director, Division of Education, The National Committee for Mental Hygiene, Inc.

Human Relations—A Vital Part of Modern Management, Jerome A. Gottschalk, President, Counselors, Inc.

Promoting Cooperation Among Employees in Food Production and Service, J. Ridge Hicks, Director of Personnel, Hot Shoppes, Inc.

10:00 a.m.—DIET THERAPY TRENDS—Jean Crooks, *Presiding*

Diet Requirements in Cerebral Palsy, Winthrop M. Phelps, M.D., Medical Director, Children's Rehabilitation Institute

Newer Studies in the Treatment of Burns, Stanley Levenson, M.D., Director of Burn Research for the U.S. Army, Medical College of Virginia

Psychosomatic Medicine and Dietetics, O. Spurgeon English, M.D., Temple University Hospital

A Public Health Heart Program—Its Nutritional Aspects, Frederick G. Gillick, M.D., Senior Surgeon, Chief, Heart Disease Control Branch, U.S. Public Health Service

12:00 noon—ALUMNAE LUNCHEONS

1:00 p.m.—MEETING OF STATE COMMUNITY NUTRITION SECTION CHAIRMEN—Mary Reeves, *Presiding*

1:00 p.m.—MEETING OF STATE DIET THERAPY SECTION CHAIRMEN—Marguerite L. Pettee, *Presiding*

1:00 p.m.—THE DIETITIAN'S RESPONSIBILITY IN THE CARE OF THE PATIENT FROM THE POINT OF VIEW OF ALLIED PROFESSIONAL WORKERS

Moderator:

Lucille M. Refshauge, Director of Dietetics, Hartford Hospital

Panel Members:

George Bugbee, Executive Director, American Hospital Association

Donald M. Smelzer, M.D., Executive Director, Hospital Planning Agency of the Citizen's Conference

(Another member to be announced)

3:00 p.m.—INSTITUTION CONSTRUCTION PROGRAM—Alice H. Smith, *Presiding*

Forecast Fare: The Outlook for Better Hospital Service, J. R. McGibony, M.D., Chief, Division of Medical and Hospital Resources, U.S. Public Health Service

The Clinical Center of the National Institutes of Health: Food Preparation and Food Service Facilities, Jack Masur, M.D., Director, Clinical Center, National Institutes of Health, U.S. Public Health Service, and J. H. Werner, Unit Chief, Equipment Section, Public Buildings Service

The Dietary Consultant—A Service to Institutions, Wilma F. Robinson, Consultant Dietitian, Illinois Department of Public Health

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3:00 p.m.—NUTRITION IN THE HOSPITAL—Lillian S. Coover, Ph.D., *Presiding*
Therapeutic Diets—A Medical Failure, Herbert Pollack, M.D., Ph.D., Associate Physician for Metabolic Diseases, Mount Sinai Hospital, New York City
The Dietitian's Role as a Member of the Faculty of the School of Nursing, Henderika J. Rynbergen, Assistant Professor of Science, Cornell University-ACTH and Research Trends in the Hospital (Speaker to be announced)
New York Hospital School of Nursing, New York
6:00 p.m.—DINNER MEETING, COMMUNITY NUTRITIONISTS, Hotel Statler—Mary Reeves, *Presiding*
A Study of the Dietary Patterns in Families Receiving Aid to Dependent Children, Bertlyn Bosley, Ph.D., North Carolina State Board of Health
6:00 p.m.—DINNER MEETING, DIETETIC INTERNSHIP BOARD, Hotel Statler—Ercel S. Eppright, Ph.D., *Presiding*
6:00 p.m.—ALUMNAE DINNERS
8:00 p.m.—NUTRITION RESEARCH, Hotel Statler—Margaret A. Ohlson, Ph.D., *Presiding*
Metabolic Adaptations to Rice Diet Therapy in Hypertension, Donald M. Watkin, M.D., Research Fellow, Thorndike Memorial Laboratory, Boston City Hospital
Research in Cholesterol Metabolism Related to Cardiovascular Diseases, George V. Mann, M.D., D.Sc., Assistant Professor of Nutrition, School of Public Health, Harvard University
Current Research in Nutrition, C. Glen King, Ph.D., Scientific Director, The Nutrition Foundation, Inc.

Friday, October 20

8:00 a.m.—BREAKFAST MEETING, MEMBERSHIP COMMITTEE, Hotel Statler—Margaret A. Ohlson, Ph.D., *Presiding*
8:00 a.m.—ALUMNAE BREAKFASTS
9:00 a.m.—PUBLIC RELATIONS AND VOCATIONAL GUIDANCE—Jeanette V. Hamlin, *Presiding*
Dividends of Satisfaction, Katherine C. Wisely, Area Home Economist, U.S. Department of Agriculture, New York City
Public Relations, Converse Tyler, Chief, Speaker's Bureau, American National Red Cross
10:00 a.m.—NEW TRENDS IN FOOD ADMINISTRATION—Fern W. Gleiser, *Presiding*
The Architect and the Planning of Your Kitchen, Slocum Kingsbury, Architect, Washington, D. C.
Work Simplification—A Tool in Reducing Food Costs, Ercole Rosa, Jr., Instructor, Department of Industrial Engineering, Columbia University
Plastic Tableware for Army Use, Charles N. Gardner, Chemicals and Plastics Section, Research and Development Branch, Military Planning Division, Office of the Quartermaster General, U.S. Army
10:00 a.m.—PUBLIC HEALTH NUTRITION—Mary Reeves, *Presiding*
Food for Health, Leonard A. Scheele, M.D., Surgeon General, U.S. Public Health Service
Organization and Functions of Nutrition Clinics, Norman Jolliffe, M.D., Director, Bureau of Nutrition, Department of Public Health, New York City
The New Jersey Paraplegic Veterans' Program, William S. Schram, M.D., Medical Consultant to Vocational Rehabilitation and Education Division, Veterans Administration, Newark, and Winifred Duffy, Nutritionist, Veterans Administration, Newark
12:00 noon—ALUMNAE LUNCHEONS
12:15 p.m.—HISTORY OF NUTRITION AND DIETETICS LUNCHEON, Mayflower Hotel—E. Neige Todhunter, Ph.D., *Presiding*
1:30 p.m.—EXHIBITS CLOSE
1:00 p.m.—CONFERENCE ON COST CONTROL METHODS, Hotel Statler—Frances Welch, *Discussion Leader*
1:00 p.m.—CONFERENCE ON JOB DESCRIPTIONS, Hotel Statler—Gladys L. Mason, *Discussion Leader*
2:30 p.m.—MANAGEMENT AND TRAINING, Hotel Statler—Marion D. Floyd, *Presiding*
Organization and Job Responsibilities in a Food Service Department, L. Mae Hoover, Director of Cafeterias, Government Services, Inc.
Indoctrination and Training of Employees, Alta M. LaBelle, Consultant, Interior Design, Dan Tames Company
Training of Food Service Personnel, Augusta H. Clawson, Director, The Hannah Harrison School
2:30 p.m.—HISTORY OF NUTRITION AND DIETETICS, Mayflower Hotel—Mary P. Huddleson, *Presiding*
Some of the Earlier Speculations on the Significance of Phosphorus Compounds in Nutrition, E. V. McCollum, Ph.D., D.Sc., Ll.D., Emeritus Professor of Biochemistry, The Johns Hopkins University
Lafayette B. Mendel and His Scientific Ancestry, Williamina A. Himwich, Ph.D., Medical Research Bibliographer, Welch Medical Library, The Johns Hopkins University
7:30 p.m.—ANNUAL BANQUET, Hotel Statler, Presidential Ballroom—Elizabeth Perry, *Presiding*
Building a Better World, Jennings Randolph, Assistant to the President, Capital Airlines

Cod Fish Waste Makes Synthetic Egg White

Chemical and Engineering News reports that in Norway a chemical process has been developed which can outproduce 100,000 hens by daily transforming cod fish waste into synthetic egg white. Production is carried out by a completely chemical process, and the product is never touched by hand. One lb. of the artificial product is said to be equivalent to the egg white contained in 150 hens' eggs. To make 1 lb. requires 11 lb. of waste from the cod fish industry. Already trial production of more than 600 lb. daily has been started by two Norwegian firms, and a provisional price of 70 cents or $1 a pound has been indicated for the new product.

The synthetic product, technically termed "albumen," contains 80 to 90 per cent pure protein and can be used for baking, ice cream, mayonnaise, and pharmaceutical products, as well as for industrial products.

Although the Germans produced a synthetic egg white before the war, it was not sufficiently pure to win favor in the world market, and it tasted and smelled too much of fish.

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Mayer China Company, Beaver Falls, Pennsylvania
McGraw Electric Company, Elgin, Illinois
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Miller's National Foundation, Chicago, Illinois
Minute Maid Corporation, New York, New York
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Goldenrod Gives Licorice Flavor

The familiar yellow-blooming weed, goldenrod, contains an essential oil with licorice flavor which might be used in candy or chewing gum or for giving fragrance to deodorants and insecticides. Sweet goldenrod, which grows wild from southern New Hampshire to Florida and west to Missouri and Texas, was found best of thirty-nine species studied at the Texas Engineering Experiment Station where scientists try to find essential oils in native shrubs, weeds, and nursery crops.

The oil distilled from the sweet goldenrod plant is colorless, has a pleasant, refreshing odor similar to oil of anise, the usual licorice flavor, and could be produced easily and economically by steam distillation at low pressure. If the same equipment were used to produce oils from other plants maturing at a different time, the goldenrod oil could compete in price with other essential oils on the market. One possibility is that horsemint weed, which matures a month earlier than goldenrod and whose oil is used as an insect repellent, be distilled with the equipment that could later be used for producing goldenrod oil.

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(of our Special Diet Booklet)

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Current Literature

Contributed by Hermia M. Handt, Veterans Administration Hospital, Hines, Illinois; Berdena Rosenow, University of Kansas Medical Center, Kansas City, Kansas; Pauline Kegereis, The Children's Mercy Hospital, Kansas City, Missouri; Mildred Bonnell and administrative interns, University of Washington, Seattle; and the Journal Staff.

THE AMERICAN JOURNAL OF NURSING

Vol. 50, May, 1950

* Nutrition in the nursing school curriculum. H. J. Rynbergen.—p. 280.

Nutrition in Nurses' Training. Although the field of nutrition has expanded greatly in the past twenty-five years and the nurse's need to know the tenets of nutrition has demanded the same amount of growth, teaching methods have not corresponded with the change. In most nursing schools a few added lecture hours and a modern cooking laboratory have been the extent of nutritional growth. These changes are not sufficient to integrate nutrition with the care of the patient. Outlined in this article is the progressive nutrition program which is being carried on at the Cornell University-New York Hospital School of Nursing. An attempt has been made by the author to show that much of the well-deserved criticism leveled at the courses in nutrition given in nursing schools is due to our misconception of the role of nutrition in total patient care.

FOOD RESEARCH

Vol. 15, May-June, 1950

* Vitamin content of citrus products. W. A. Krehl and G. R. Cowgill.—p. 179.
* Use and properties of non-fat dry milk solids in food preparation. II. Use in typical foods. L. M. Morse, D. S. Davis, and E. L. Jack.—p. 216.

Effect of thawing and cooking methods on palatability and nutritive value of frozen ground meat. I. Pork. K. Causey, E. G. Andreassen, M. E. Hausrath, C. Along, P. E. Ramstad, and F. Fenton.—p. 237.
II. Beef. III. Lamb. K. Causey, M. E. Hausrath, P. E. Ramstad, and F. Fenton—pp. 249, 256.

Vitamins in Citrus Products. Only scattered data have been published on the biotin, pryidoxine, folic acid, and inositol content of citrus fruits. This investigation was made to obtain such information and to observe the effects of processing and storage on this group of vitamins. Citrus juices from a pooled composite sample of fruit from seventeen Florida processing plants were assayed. Although measurable quantities of biotin, folic acid, and pyridoxine were noted, these vitamins were present in only limited amounts in terms of practical nutritional significance. The large amount of inositol present in the citrus products makes them a rich natural source of this vitamin.

Nonfat Dry Milk Solids in Food Preparation. Experiments were conducted in which nonfat dry milk solids were added to common household recipes for white sauces, cream soups, custards, eggnogs, chocolate puddings, waffles, and angel, butter sponge, and plain butter cakes. Characteristics of the resulting products are discussed.

THE INDIAN JOURNAL OF MEDICAL RESEARCH

Vol. 37, October, 1949

* Folic acid in the treatment of macrocyric anemia in pregnancy. C. R. Das Gupta, J. B. Chatterjea, and K. K. Mathen.—p. 455.
* Folic acid in nutritional macrocytic anemia. V. Ramalingaswami and P. S. Menon.—p. 471.

Folic Acid for Macrocytic Anemia in Pregnancy. Data recorded when forty-five patients were given synthetic folic acid in doses of 20 mg. to 30 mg. a day show that folic acid is a potent hematinic in the treatment of macrocytic anemia in pregnancy with megaloblastic marrow. Not all cases react to folic acid though they may not really be refractory cases as they respond to liver given subsequently; on the other hand, cases not responding to liver were found to respond well to folic acid.

Folic Acid in Nutritional Macrocytic Anemia. Six patients with typical uncomplicated nutritional macrocytic anemia were treated with synthetic folic acid by mouth. The clinical and hematological improvements were striking and identical with the response obtained in another patient treated with crude liver extract by intramuscular injection.

INDUSTRIAL AND ENGINEERING CHEMISTRY

Vol. 42, July, 1950

* Edible oils. W. H. Shearon, Jr., H. E. Seestrom, and J. P. Hughes.—p. 1266.

Edible Oils. The consumption of edible vegetable oils has increased more than 100 per cent in the U. S. in the last generation. This report presents the complicated process of developing food products from the vegetable oils: cottonseed oil, soybean oil, peanut oil, and any combination of the three. Instances are pointed out in which future improvements in the processing of the vegetable oils can be made.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 143, June 17, 1950

* Effects of pituitary adrenocorticotropic hormone (ACTH) therapy. P. F. A. Hoefer and G. H. Glaser.—p. 620.

Vol. 143, June 24, 1950

* Treatment of hypertension. M. J. Kert, M. J. Rosenburg, E. L. Coodley, L. J. Murdock, S. H. Hoffman, E. J. Brotman, and W. L. Johnston.—p. 721.

Effects of ACTH Therapy. The adrenocorticotropic hormone of the pituitary (ACTH) is being used in the treatment of many disorders such as rheumatoid arthritis, lupus erythematosus, periarteritis nodosa, dermatomyositis, rheumatic fever, allergic states, and other conditions involving mesenchymal tissue. Although the investigation reported here was undertaken chiefly to study the nature of electroencephalographic abnormalities and neuropsychiatric disturbances in patients treated initially with the drug, a review of the pertinent physiologic effects of the hormone is included. Of particular interest from the diet therapy angle are the following factors: (a) alterations in dextrose metabolism, (b) interference with the acetylcholine cycle, (c) water retention, (d) disturbances in potassium balance, (e) alkalosis, and (f) hypertension.

Hawaii

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Treatment of Hypertension. Since 1944, when the rice and fruit juice diet was introduced in the dietary treatment of hypertension, there has been a renewed interest in this nutritional problem. Because the rice and fruit juice regimen violates the conventional pattern of nutrition and is monotonous, it has met with some resistance. Favorable results have been obtained by other workers using a diet low in sodium but adequate in other respects; however, the number of patients treated is small. This preliminary report presents the observations made on fifty-nine patients with hypertension receiving a diet containing approximately 200 mg. sodium daily. Thirty-six patients were able to follow the diet strictly, seventeen moderately well, and six followed it poorly. The majority obtained substantial relief from symptoms, especially from headaches. A large percentage of these patients who had impaired renal function as well as hypertension tolerated the diet well with improvement in both their hypertensive status and renal function. The authors concluded that the cases reported are still too few for definitive statistical analysis.

JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 184, June, 1950

The anemia of infection. X. The effect of infection on the absorption and storage of iron by the rat. C. J. Gubler, G. E. Cartwright, and M. M. Wintrobe.—p. 563.

* The amino acid-sugar reaction. L. Friedman and O. L. Kline.—p. 599.

Amino Acid-Sugar Reaction. Studies have shown that protein hydrolysate solutions containing dextrose have had a lower nutritive value than was expected. Experiments with animals have indicated also that the impaired nutritive value was restored by supplementation with the pure amino acids. Observations have indicated, too, that loss of nutritive value was accompanied by the occurrence of browning. The browning reaction has been studied by various techniques, and a report is given here of further observations on the amino acid-glucose reaction. It is suggested that the measurement of color formation is an inadequate criterion for evaluating substances added for the purpose of inhibiting the reaction; fluorescence may be a more useful tool.

NUTRITION REVIEWS

Vol. 8, June, 1950

* Problems raised by Kwashiorkor. H. C. Trowell.—p. 161.

Vitamin B_{12} and the intrinsic factor —p. 165.

Diet and industrial performance.—p. 167.

Diet and aging.—p. 184.

Kwashiorkor. Unknown to inhabitants of this country, the disease known by some as Kwashiorkor is common in tropical Africa and certain parts of tropical America and tropical Asia. There is much uncertainty about the syndrome, but almost everyone has suggested that the disease is primarily nutritional in origin. Signs of a mild case of the disease are found in a large proportion of African children, two and three years old: they are definitely underweight, the hair is brown and soft, and serum albumin is reduced. The nutritional aspects of the disease are explained and the opinion is presented that the dominant defect in Kwashiorkor is that of protein inadequacy. Further observations are being made to determine the nature of the gastrointestinal defect and to study nitrogen balance, as a pathologic study of this disease is being conducted.

PSYCHOSOMATIC MEDICINE

Vol. 12, May-June 1950

* Anxiety, HCl secretion, and peptic ulcer etiology. G. F. Mahl.—p. 158.

Ulcer Etiology. This study was done on the theoretical hypothesis that acquired chronic anxiety in humans is accompanied by increased hydrochloric acid secretion. Eight male undergraduate university students were subjects. Control gastric samples were obtained during a relatively stress-free period of the school year, and experimental test samples during the final examination period. Gastric acidity was significantly higher during the examination period than during the control period, and was closely related to the degree of conscious anxiety manifested by the subjects.

SCIENCE

Vol. 112, July 21, 1950

* The relation in man between cholesterol levels in the diet and in the blood. A. Keys, O. Mickelsen, E. v. O Miller, and C. B. Chapman.—p. 79.

Cholesterol Levels in the Diet and in the Blood. It has been widely assumed that the amount of cholesterol consumed in the diet is reflected in the concentration of cholesterol in the blood serum and, eventually, in the tendency to develop atherosclerosis. There is no definite proof, however, that moderate differences in the blood serum level of cholesterol in man have any influence on development of this condition. A preliminary report is given of a study on the habitual diet of 482 clinically "normal" men who were volunteer subjects in a long-range program to determine the relation in man between cholesterol levels in the diet and in the blood. The subjects were segregated into five classes of relative cholesterol intake, and all of them have been studied with care for over three years. Findings indicate that the serum cholesterol level is not significantly related to differences in the habitual cholesterol intake over a range of 250 to 800 mg. per day. Thus, it may be inferred that efforts to control the serum cholesterol by alterations of the intake within this range are unlikely to succeed with normal individuals. In contrast are the results of experiments with hypertensive patients in which the cholesterol intake was completely eliminated—using the rice-fruit diet currently popular in the treatment of hypertension. On this diet, marked declines in the serum cholesterol have been regularly and rapidly produced. It appears, then, that the blood cholesterol level is independent of the intake over a wide range, but when the diet is cholesterol-free the blood level falls at a rate related to the previous level of cholesterol in the blood. In view of these observations it is doubtful whether most so-called low-cholesterol diets in current use reach critical levels or have significant utility for the purpose of their use. Diets that permit ordinary amounts of lean meats and the use of skim milk, and that do not rigidly exclude from every item of cookery and baking all dairy products, eggs, and animal products, will regularly supply more than 100 mg. or even as much as 200 mg. of cholesterol daily.

AMERICAN RESTAURANT MAGAZINE

Vol. 34, June, 1950

* Pack your menu with salads to pack your place with patrons. J. A. Cline.—p. 36.

Care of miscellaneous electrical equipment. T. Trail.—p. 43.

* Economy menus two-way.—p. 56.

Salads. In this article different kinds of salads, their uses in meals, kinds of salad dressings, and basic recipes for the different kinds and variations of salad dressings are pictured and described. Pertinent instructions for preparing salads are included.

Economy Menus. Thirty menu suggestions for lunch,

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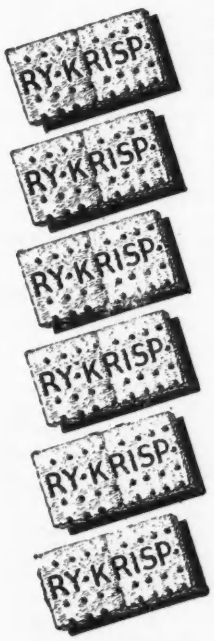

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dinner, and late supper are given to help cut food costs and yet give patrons satisfying meals. The menus all include some kind of bread.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 8, June, 1950

* A. P. I. has a foolproof system of cafeteria cash control. I. Jones.—p. 47.
Frozen citrus juice eliminates the squeeze. O. M. Thomas.—p. 49.

Cafeteria Cash Control. Since handling of cash income is one of the essentials of efficient food operations, Alabama Polytechnic Institute has tried to eliminate errors due to the human factor. The system, the result of a three-year study, is described. The control of cash income has been successful because of frequent checking (after each meal) and because of the rigid rule of preparing daily sales reports. The system is especially suited to the commercial type of food establishment.

FOOD INDUSTRIES

Vol. 22, June, 1950

* Facing the facts on frozen concentrated milk. A. V. Gemmill.—p. 39.
* Tailor-made dry milks. A. P. Stewart.—p. 52.
* Shortenings for frying and baking. S. W. Arenson.—p. 65.
* Two-pass technique obtains full-flavor grape juice. R. P. Homiller, G. W. MacP. Phillips, R. K. Eskew, and N. H. Eisenhardt.—p. 76.

Frozen Concentrated Milk. The development of frozen concentrated milk is comparatively recent and much more work and experimentation must be done before the product is ready to be marketed. Research workers are convinced it is practical for home consumption from a quality standpoint. The following are the most obstinate of the technical problems: (a) avoiding the worked flavor when pasteurizing and concentrating; (b) getting the proper concentration; and (c) preventing breakdown in storage.

Tailor-Made Dry Milks. New dry milk products are being tailored with special characteristics to produce special effects. Chocolate requires specially processed milk powder with a low-moisture content and a "milk" flavor. The stability properties of condensed and evaporated milk have been incorporated in the powder designed for the manufacture of caramels. For custards, a powdered whole milk has been developed which contributes to the custard's smooth, firm body. By a process of quick evaporation and special drying, a powdered cream has been developed for use by a distributor of coffee vending machines. Special milk powders have been developed also for making cottage cheese, buttermilk, and ice cream.

Shortenings. Research in vegetable oil and animal fat technology has led to production of shortenings with increased primary stability, uniform characteristics, greater utility, and increased variety. A chart shows the differences in shortenings for low-sugar cakes, high-sugar cakes, cake-doughnut frying, yeast-raised doughnut frying, potato chips, biscuits and crackers, and bread.

Full-Flavor Grape juice. A product with the full flavor and aroma of the original juice has been produced from a Concord grape juice concentrate reconstituted with water. The essences of the fruit must be recovered in two stages and then blended with the concentrated stripped juice. The process is described. The product can be used to make fuller flavored frozen grape juice concentrate or to heighten the taste quality of such products as grape jellies and preserves.

HOSPITALS

Vol. 24, June, 1950

* Applying airline food service ideas to hospital dietetics. F. R. Bradley.—p. 103.

Airline Food Service Ideas for Hospitals. Last year the Department of Dietetics at Barnes Hospital in St. Louis inaugurated "airline type" food service as a research experiment. Special equipment was obtained through the courtesy and help of one of the airlines and the experiment was begun on one of the private-patient divisions of the hospital. Details of the service and of the equipment are described. The experiment has been successful and plans are being made to extend the service.

INSTITUTIONS MAGAZINE

Vol. 26, May, 1950

* What of new sanitation chemicals?—p. 2.
* How coordinated plan pays off in smooth operation.—p. 35.
* When experts delve into dishes.—p. 122.

Vol. 26, June, 1950

* How to comply with new law on margarine.—p. 1.
* Food world finds place for whey in ices, baked goods.—p. 2.
* Cutlery—its selection, use and care.—p. 8.

Vol. 27, July, 1950

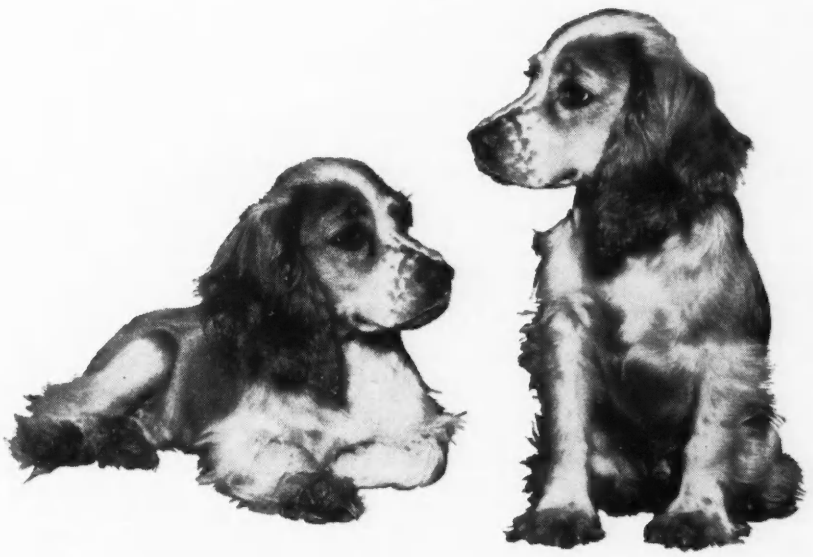
* Training tomorrow's master chefs.—p. 15.
* New ideas in food service perk up sales.—p. 40.

New Sanitation Chemicals. The use of new sanitation chemicals, by themselves and in combination with older chemicals, has made it possible to demand higher and higher standards of sanitation. Films and accumulated deposits carrying bacteria, which had been virtually impossible to remove formerly without causing serious damage to surfaces, can now be eliminated. The wetting agent group of chemicals is being used very generally for cleaning. Their purpose is that of making water to wet surfaces and soils more efficiently. Uses are discussed for the various types of wetting agents including non-ionics, complex phosphates or polyphosphates, and organic acids. In addition to these chemicals for cleaning, there are also the newer sanitizing chemicals which are of great importance in sanitation. The most important of this group are the quaternary ammonium compounds. Another new class of products has appeared—the detergent-sanitizers or germicidal-detergents (developed by adding non-ionics to quaternaries). Detailed uses and actions of the numerous sanitation chemicals are described throughout the article.

A University's Food Operation. The food service operation at the University of Florida, Gainesville, is described in this article. The director of food service is responsible to the business manager for the main cafeteria and three outlets—campus club, soda fountain, and a small cafeteria. In addition to administrative employees and full-time employees, much student help is used. Budgets are prepared for a two-year period and then broken down into annual, monthly, and daily budgets. Each unit of the food service department is self-supporting. Procedures followed for food purchasing, food production, and cost accounting are reviewed.

Dishwashing Methods. The operation and care of dishwashing machines and methods of hand washing dishes are reviewed in this article, which is based upon a panel discussion at a recent sanitation seminar. The operation of spray-type dishmachines is presented along with a discussion of techniques of cleaning machines and a review of the best methods of hand washing dishes at fountains.

Margarine. A new margarine law requiring identification of yellow margarine served in public eating places became effective July 1, 1950. Severe penalties will be inflicted for violations. Stipulations include identification by signs or menu declaration and identification by individual servings. Specifications regarding the size, type and location of signs, and menu declarations are given. In addition, margarine served to customers must have the word "oleomargarine" or "margarine" prominently marked on the serving dish or paper, unless it is served in triangular shape.



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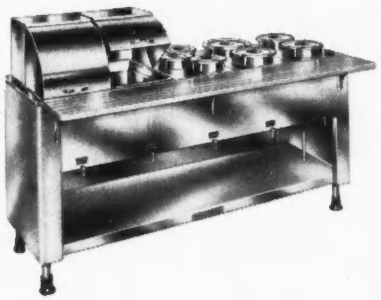

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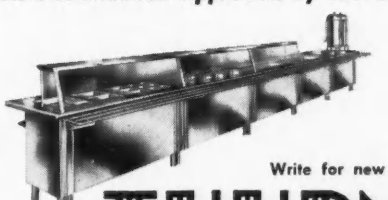

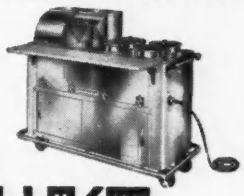

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Uses for Whey. Experimental work is described which has been conducted to discover uses for whey, which is frequently discarded although it has excellent food value. In baked goods it makes more tender products with a more uniform brown crust, and the products keep fresh longer. Several recipes adapted to make use of whey are given for baked goods and sherbets.

Cutlery. Emphasis is placed on the importance of selection of the proper tools in food service work. Features to look for in choosing knives for specific uses are given. The metallurgical composition of knives and the proper heat treatments used in the manufacture of knives are discussed in relation to their function.

Training in Fine Food Preparation. The Restaurant Institute of Connecticut was founded at the end of World War II so that veterans could complete their training as chefs, bakers, or stewards, which they had started in the service. Food equipment manufacturers, food and beverage industries, public utilities, and interested individuals have given the Institute fully equipped, modern classrooms, dining halls, large commercial kitchens, and bake shops. Resident dormitories and recreation rooms are also provided for the students. To ease the teacher shortage, the Institute initiated a summer workshop to develop teaching techniques for persons skilled in the food industries. Besides training as chef, cook, steward, baker, pantry man, and salad maker, the Institute also gives its students an overall picture of the problems in food service management. The training program is 85 per cent manual and 15 per cent theory. The three main courses of instruction are: Basic Restaurant Trades, Chefs Training Course, and Commercial Baking.

THE MODERN HOSPITAL

Vol. 75, July, 1950

* Tableware, 1950. M. deG. Bryan.—p. 112.

Nutritious main dishes give substance to meals. M. Eichelberger.—p. 114.

More Attractive, Economical Table Service. Recent developments in china, plastics, and flatware have introduced more economical and attractive place settings in hospitals. Beautiful new designs in china are being offered for food service in institutions that can afford the best. But more significant is the plastic tableware for moderate and low cost food services that has the advantages of lightness and ease of handling, noise reduction, space-saving stacking, low breakage, and virtually no bacterial count. Though the designs are limited, some of them have practical features such as saucers that prevent cups from slipping and also prevent spillage while being carried on trays. However, they do not dry readily, and manufacturers have not found a method to prevent tea and coffee stains. Paper containers, used for casserole and custard dishes, as well as individual serving dishes, reduce labor in washing and are especially valuable for patients with infectious diseases. Some paper utensils are covered with plastic to improve appearance and prevent absorption of liquids and help heat resistance. An important development in glassware is the blown tumbler, heat treated and breakage resistant so that it bounces when dropped. Stainless steel flatware, which does not tarnish, is easily cleaned, sturdy, and retains its shape, is used generally in institutions that formerly bought the cheaper plated ware. The 1950 look also includes tables with plastic tops, gayly colored table cloths, attractive trays, and paper tray covers.

NEWS BULLETIN OF THE NATIONAL RESTAURANT ASSOCIATION

Vol. 31, June, 1950

* The food show of 1950—Special bulletin No. 110.

Vol. 31, July, 1950

* Industry opposes beef grading changes.—p. 1.
* Hotel administration center dedicated at Cornell University.—p. 2.

Tested Cooking Procedures. This fifteen-page booklet is a report of the food show presented at the 31st National Restaurant Convention, May 23–26, at Navy Pier, Chicago. Tested and approved cooking procedures are recorded for chicken frying (four methods); sea food—frying and roasting; utilization of pork loins; eggs and bacon; and perfect iced tea.

N.R.A. Protests Proposed Changes in Beef Grades. The U. S. Department of Agriculture has proposed to classify beef as follows: "U. S. Prime" and "U. S. Choice" would become one grade, designated as "U. S. Prime." The present "U. S. Good" would be changed to "U. S. Choice." What is now "Commercial" would be divided into two grades, the top half graded "U. S. Good." The National Restaurant Association cites three reasons for opposing the changes: (a) Using existing terminology for different grades of beef would confuse supply agencies and operators. (b) Unscrupulous meat dealers could sell lower grades of beef at higher prices. (c) There would be no incentive for producers of "prime" beef to continue their top quality, and if they did, they would eventually seek a new grade for the top 1 per cent—returning the situation to its original status.

Hotel Administration Center Opened at Cornell University. Statler Hall, a $2,500,000 educational center for hotel administration, was opened at Cornell University, Ithaca, New York, in May. The new four-story building near the center of campus, was given by the Statler Foundation as a memorial to the late Ellsworth M. Statler, hotel executive. It is the first "practice inn" on any campus, and its 36 guest rooms are part of the facilities to train the 380 students. Professor Howard B. Meek, who has taught at the hotel school since its founding in 1922, has been appointed Director of the School of Hotel Administration, which continues as part of the New York State College of Home Economics.

Green Light For Nostalgia

It was the year 1917. The fair city of Cleveland was having an experience untasted theretofore by any metropolis anywhere. But it was hardly aware of the uniqueness of the occasion. It had scant knowledge of the meeting being held by the professional ladies who had gathered there from twenty-one states and Canada to discuss the horizons of dietetics. Suffice to say that they availed themselves of satisfactory accommodations at the Hotel Statler—single room with shower at $1.50 and up, a double room with similar facilities at $3 and up; at the Hollenden, for 50 cents more; and the Euclid for 50 cents less for a double. Available were rooms at the Y.W.C.A., which scaled from 50 cents to $1. There, breakfast and lunch à la carte could be had for 15 cents, and dinner table d'hote at 35 cents. It was too good to last. The next year the membership dues of the new American Dietetic Association leaped from $1 to $2.

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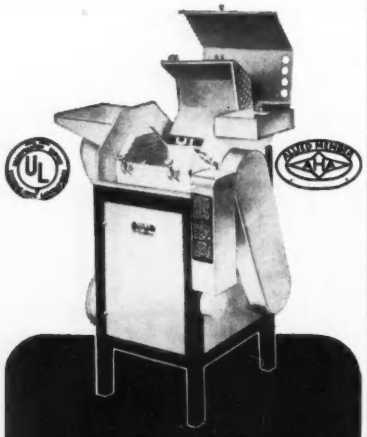

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News Notes

Army Needs Dietitians. An immediate need for dietitians has been announced by the Army's Women's Medical Specialist Corps. The expansion of the Corps is necessary to bring it up to required strength. Particularly desired are Reserve officers of the Dietitian Section and dietitians who have served on tours of duty with the Army during and since World War II. Reserve officers will be recalled in grades up through captain. They are urged to apply through the Chief of the Military District of the state in which they hold permanent residence or (if they are members of medical Reserve units) through their Organized Reserve Corps unit instructors. The program is entirely voluntary and is a phase of overall Army planning for the voluntary recall of Reserve officer personnel. Officers recalled will serve for at least one year and may request tours of duty for two or three years.

Masters Degree in Public Health Nutrition. The School of Public Health of the University of North Carolina has announced a course leading to the degree of Master of Public Health with specialization in nutrition. The purpose of the course is to orient the nutritionist in the field of public health. Frances MacKinnon, Associate Professor of Public Health Nutrition, will be in charge of the course.

IIT Again Offers Dietary Courses. The Illinois Institute of Technology this fall will offer three undergraduate courses for students of dietetics and restaurant training. The courses are: Institutional Management and Purchasing; Large Quantity Cookery; and Diet and Disease.

Color Television Demonstrates Diets. A program of color television as a medical teaching aid, including a demonstration-discussion of diets, was shown at the recent American Medical Association convention in San Francisco. Dr. Lowell A. Rantz, Associate Professor of Medicine at Stanford University School of Medicine, and Nancy Hooper, Dietitian, Stanford University Hospitals, discussed various diets served to six patients. The discussion was patterned after "Nutrition Rounds," a weekly teaching practice at Stanford.

Documentary Film on Hospitals. RKO-Pathe has recently completed a documentary film on hospitals titled "House of Mercy." It will be distributed nationally as one of the "This Is America" series.

The film was made at the Princeton, Hospital, Princeton, New Jersey, and the administrator, trustees, personnel, and staff members all participated. Only one professional actor was used. The American Hospital Association assisted in selecting the site and gave technical advice during the filming.

The plot is written to tell the story of how one man came to appreciate the importance of his hospital. As a result of an accident, his son requires hospitalization, and the father learns about the hospital. By means of narration supported by photographs of interesting scenes in the various departments of the hospital, the documentary is unfolded. The food service department is featured, as well as the nursing, X-ray, laboratory, nursery, laundry, engineering, maintenance, and surgery departments.

The film will be shown at theaters throughout the nation, after which 16 mm. prints will be made available through the American Hospital Association for further showings to various groups.

VA Civil Service Positions. The U.S. Civil Service Commission has announced an examination for Dietitian for positions in hospitals and regional offices of the Veterans Administration in the U.S. and Puerto Rico. The positions pay $3100 to $3825 annually. Applicants must have a bachelor's degree and in addition have completed an approved hospital dietetic internship or present at least three years' experience as a dietitian. Additional experience is required for positions paying $3825. Further information may be obtained from Civil Service Commission offices and first- and second-class post offices.

Dr. Albright Receives Award. Dr. Fuller Albright, Associate Professor of Medicine, Harvard Medical School, has been named recipient of the 1950 Joseph Goldberger Award in Clinical Nutrition for his work in mineral metabolism and human metabolism as influenced by the endocrine glands. The annual award—a gold medal and $1000 in cash—will be presented to Dr. Albright by the Council on Foods and Nutrition at a fall meeting.

Dr. Stanley Retires. Dr. Louise Stanley, Nutritionist and Home Management Leader who served with the U.S.D.A. for twenty-seven years, retired June 30. Since 1943 she has been Special Assistant to the Administrator and Coordinator of Research in Home Economics of the Agricultural Research Administration. Her first position in the federal service as that of Head of the then new Bureau of Home Economics (now known as the Bureau of

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Human Nutrition and Home Economics). She has also represented the U.S. at various international conferences.

Dr. Stiebeling at Latin American Conference. Dr. Hazel Stiebeling, Chief, Bureau of Human Nutrition and Home Economics, U.S.D.A., acted as head of a three-woman delegation for the U.S. to the Latin American Conference on Nutrition in Rio de Janeiro, Brazil, June 5 to 13.

WHO Represented at Pediatrics Conference. Dr. Federico Gomez of the Maternal and Child Health Section, Pan American Sanitary Bureau of the World Health Organization, attended the sixth International Pediatrics Conference in Zurich, July 24 to 28. From there he went to a Seminar on Pediatrics held in Geneva by WHO and UNICEF, August 1 to 10. Dr. Gomez recently toured Latin America countries where he observed medical and public health facilities for maternal and child health and gathered information for a technical health program to reduce infant mortality.

New WHO Regional Office. The World Health Organization is preparing to establish a new Regional Organization for the Western Pacific area. The area covered by the new office has provisionally been designated to include Australia, China, the Philippines, South Korea, New Zealand, Viet Nam, Laos, Cambodia, Japan, Malaya, and Singapore. Some 600 million people live in this area. WHO already has regional organizations in the Eastern Mediterranean area, Southeast Asia, and the Americas, as well as a special office in Europe.

Medical Education Radio Program Begun. The New York Academy of Medicine initiated a post-graduate medical education program on an FM radio station on July 27. The first program was directed to physicians in Greater New York, but it is expected that later lectures will be made available for rebroadcasting throughout the nation, and that recordings will be made for medical meetings, clinical conferences, and hospital staff meetings.

Interns Graduate. The *VA Hospital, Bronx, New York*, held graduation exercises for seventeen dietetic interns on June 27. Interns who received diplomas were: Julia Louise Filippini, Eloda Margaret Gust, Charlene E. Ham, Kimiko Hanta, Maryellen Imboden, Esther J. Krantz, Claire Ann Pare, Eleanor Mary Petrarca, Elizabeth M. Shanahan, Dorothy Louise Stewart, Esmene Mary Vlatos, Agnes Marie Fidati, Janice Grey Kibler, Marion Gail Kuckuk, Evelyn Bellis Murtha, Evelyn Michal Roth, and Geraldine G. Smith.

Certificates were presented to twelve dietetic interns at the twelfth graduation exercise at *VA Hospital, Hines, Illinois*, on July 10. Graduates were: Doris Eleanor Baker, Shirley Mae Chaska, Mary Ann Corsino, Margaret Ruth Foley, Alice L. Kerbs, Margaret Elaine Kershaw, M. Jean Lindaman, Wilma Jean Rush, Mary Margaret Stucker, Velma Faye Walker, Burness Gene Wenberg, and Elizabeth G. Winston. Dr. K. A. Carroll, Manager of the Hospital, spoke on "The Dietitian's Responsibility to the Hospital," and Mabel MacLachlan, Educational Director of A.D.A., talked on "Dietetics, Your Profession."

The following girls completed their dietetic internships at *Aetna Life Affiliated Companies*, Hartford, Connecticut, on June 30: Nancy L. Boggs, Barbara Jarvis, Ruth Thompson, Patricia Crouse, Elinor Hylen, and Peggy Crooke.

Ruth Forsberg. The death of Ruth Forsberg, Chief Dietitian, Swedish Hospital, Seattle, in July has been reported to the Association office. Miss Forsberg had been a member of the Association since 1929 and had been active in the Association's professional activities, having served as a member of the Placement Bureau Board.

Dorothy Dolan. Dorothy Dolan, Chief Dietitian, St. Louis County Hospital, Clayton, Missouri, passed away on July 28. She had been an active member of the profession, having participated in activities in the national, state, and local dietetic associations. At the time of her death she was President-Elect of the Missouri Dietetic Association. She had also served as a member of the A.D.A. House of Delegates and as President of the St. Louis Dietetic Association.

Today dinnerware must last to be good
When you can save up to 95% of your regular china and earthenware breakage costs . . . when you can have attractive dinnerware that outlasts ordinary kinds three or four times . . . then you have real quality in table service. The kind that fits today's needs.
Boontonware has proven just such quality again and again in commercial and institutional food service operations all over the country.
Specify Boontonware, the quality line of Melmac® molded dinnerware. It lasts and lasts and lasts. There is maximum durability in Boontonware, your best protection against price and supply changes.
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When charts prescribe "Wheat Flakes," it pays to order Kellogg's PEP Individuals*!

Patients get crisp, flavor-rich wheat flakes when appetites need most coaxing. PEP Individual Packages* protect flavor and crispness from high humidity of kitchens until box is opened in patients' rooms.

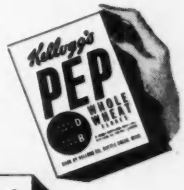
More vitamins than in any other wheat flakes cereal! Each 1-oz. serving of Kellogg's PEP provides the day's requirement of vitamin D for adults and children! No other cereal gives more!

PEP is enriched to supply ¼ the minimum daily need of vitamin B_1. It has other vitamins and minerals found in toasted whole wheat, including the vital wheat germ.

Kellogg's PEP	1 cup (1 oz.)
Thiamine	.25 mgm.
Riboflavin	.032 mgm.
Niacin	1.7 mgm.
Vitamin D	400 I. U.

You save money . . . space . . . time! No waste. Unused packages of Kellogg's PEP are left *unopened* . . . can be stacked easily and compactly. Each box is a *help-yourself* serving.

Greater favorites . . . greater variety! A tasty, nourishing bowl of PEP or other Kellogg's cereal will seem "just like home" to your patients. Hospital records show they're favorites the country over. And only Kellogg's brings you Rice, Wheat, Corn and Soya cereals! Some flaked, some popped, some shredded. All delicious, all nutritious.



P.S. You'll find a hearty welcome awaiting you at our booth at the Washington, D.C., Convention, Oct. 16-20! Lots of new ideas, too: free purchasing guides, charts, menus, recipes. Do stop in for a chat!

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We think you'll be particularly interested in our diet cards and holiday items; we have furnished them with pride to your profession for over a quarter of a century.

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Meetings. The *American Hospital Association's* annual convention will take place September 18 to 21 in Atlantic City.

The *American Public Health Association* will meet this year in St. Louis. The dates are October 30 to November 3.

The *School Food Service Association's* 1950 convention will be in Kansas City, Missouri, November 8 to 10. Headquarters hotel will be the Muehlebach.

The *American Association for the Advancement of Science* will hold its annual meeting in Cleveland this year, December 26 to 30.

Restaurant Association Short Course. The sixth annual short course sponsored by the National Restaurant Association is scheduled for September 18 to 20 at the University of Chicago. All types and sizes of food service operations will be considered, and practices to insure control of food and labor costs will be discussed by authorities with practical experience.

A.H.E.A. Convention. "Enlarging the Sphere of Home Economics" was the theme of the 41st annual meeting of the American Home Economics Association held in Boston in July. More than 190 exhibits were displayed on foods, textiles, and appliances. Florence Fallgatter, Head, Department of Home Economics Education, Iowa State College, took office as President. Other new officers elected are: Vice-President, Catherine T. Dennis, State Supervisor of Home Economics Education for North Carolina, and Treasurer, Vivian Crow, Head, Department of Home Economics, Carnegie Institute of Technology.

American Chemical Society Meeting. More than 8500 chemists and chemical engineers heard reports of new chemicals to aid in processing and preserving foods, improved insecticides, and new products from waste materials of the wood industry at the 118th national meeting of the American Chemical Society in Chicago, September 4 to 8. The Division of Agricultural and Food Chemistry held a symposium on "Functional Chemicals in Processed Foods," under the chairmanship of Franklin C. Bing, Director, American Institute of Baking. Dr. A. D. Welch, Western Reserve University, acted as chairman of a joint session of the Division of Agricultural and Food Chemistry and Biological Chemistry, at which "Metabolic Actions of Vitamin B_{12}" were discussed.

Hospital Administrators Meet in Brazil. Diplomas were presented to 238 persons who attended a two-week course held by the Third International Institute for Hospital Administrators in Rio de Janeiro, June 18 to July 1. The Institute, organized by the Pan American Sanitary Bureau and the Inter-American Hospital Association, was devoted to the study of providing adequate hospital service in the Americas. In contrast to the ever-increasing hospital facilities in the U.S., adequate medical care exists in less than one-third of the population in Latin America.

Institute for Dietetic Consultants. An Institute and Workshop on Planning and Operating Hospital and Institution Food Services will be conducted by the American Hospital Association at the Wardman Park Hotel, Washington, D. C., October 9 to 13. Sponsoring organizations for the institute will be: Children's Bureau, U.S. Public Health Service, and A.D.A. The program has been planned to help dietitian consultants, nutritionists, and dietitians giving advisory consultant service to dietary departments. Copies of the program and application blanks may be obtained by writing to Margaret Gillam, Dietetics Specialist, American Hospital Association, 18 East Division Street, Chicago 10.

Army Films for Training Food Workers. The Army has released two parts of a four-part film entitled "Training Hospital Food Service Personnel." The series is planned for use in training personnel below the supervisory level, and each part is a complete teaching unit.

Part I—Introduction is designed to orient the audience to the hospital and shows various food service activities. Emphasis is placed on cleanliness, advance planning, care in food preparation, and timing of preparation and service.

In *Part II—Sanitation* is brought to life an unsavory character, represented as a ghost who is unable to cope with clean surroundings and proper food handling. Discouraged and embittered by failure to establish his dirty habits, he leaves the hospital kitchen. Thus the desirability of cleanliness and personal cleanliness, as well as sanitary work habits is pointed out. The role that improper food handling plays in the spread of disease is pictured.

The films may be obtained from the film libraries located in the headquarters of six Army areas. They are listed as: "Training Hospital Food Service Personnel"—TF 8-1575, Part I—Introduction; and TF 8-1576, Part II—Sanitation. Running time for Part I is 17 min., for Part II, 13 min. Both films are in black and white with sound.

The films were developed for use in Army hospital food service training programs, but are available to other medical installations.

U. S. Air Force. Announcement has been made of the commissioning of Barbara M. Hodgkins, Waltham, Massachusetts, as First Lieutenant in the U.S. Air force Women's Medical Specialist Corps.

Plentiful Foods. The U.S.D.A. lists the following foods expected to be in plentiful supply in September:

Fruits and Vegetables
Cabbage
Potatoes, Irish
Vegetables, locally grown
Beets
Carrots
Corn, sweet
Cucumbers
Tomatoes

JELL-O
PEACH-ALMOND MOLD
SERVED IN LILY CUPS
18 ounces Raspberry Jell-O
2 quarts hot water and peach juice (180°)
1 pint orange juice
1 teaspoon grated orange rind
1¼ quarts canned, sliced peaches, drained
4 ounces toasted shredded almonds
Dissolve Jell-O in hot water and peach juice. Add
orange juice and rind. Chill till slightly thickened,
fold in peaches and almonds. Turn into Lily* cups.
Chill until firm. Serve plain or with whipped cream.
Yield: 48 3-oz. portions
36 4-oz. portions
29 5-oz. portions
Lily Cups

HERE'S NEW APPEAL FOR ANY MEAL

Now, here is a better, easier way to serve Jell-O—in sparkling Lily dessert cups! Compared with conventional nappies, Lily cups proved best by every test. Best for appearance! Best for speed! Best for economy! And even in hottest weather, Jell-O stays firmer longer in Lily cups.

Little wonder so many leading hospitals are switching to Lily Paper Service! Uniform, appealing, economical... and a blessing to overworked staffs. Save this recipe. Write today for additional recipes and for your free trial supply of Lily dessert cups. Then try these Lily Jell-O desserts yourself...and you too will be switching to Lily!

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Twenty Tasty Servings—
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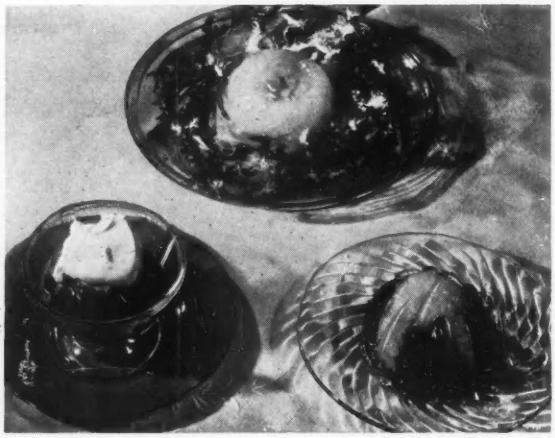

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FOR THE DIABETIC

Make colorful, sparkling desserts and salads with CELLU GELATIN DESSERT. *It's sugar-free!* Six refreshing flavors: true fruit Orange, Lemon and Lime; imitation Raspberry, Strawberry and Cherry. Convenient to use, because CELLU GELATIN DESSERT is packed in individual-serving envelopes.

All Flavors Available in Pound Sizes For Institutional Use.

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Send for new catalog of Cellu Dietary Foods, including tasty recipes, tables of food values, vitamin charts, etc.

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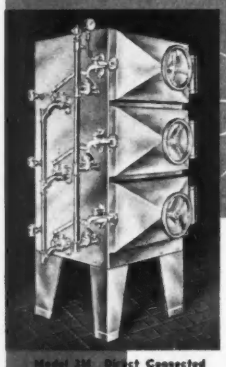

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You can serve hot, fresh, appetizing meals in *less* time and with *less* work when you cook with Market Forge Steam Cookers. Food is *tastier.* Cooking is *faster.* Waste and shrinkage is cut. Steam cooking saves you time and labor because it eliminates washing heavy pots and pans. There is never any burned food.

Cook with Market Forge Steam Cookers. Get these major advantages *originated* by one of the oldest and largest companies manufacturing steam cookers today — Market Forge.

- **One-piece sanitary shelves.**
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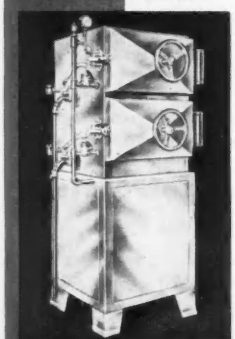

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Cheese
Cottage cheese
Other skim milk products
Milk
Eggs
Hens

New NRC Publication. *The Composition of Milks* is the title of Bulletin No. 119 recently released by the National Research Council. It was prepared by Icie G. Macy, Harriet Kelley, and Ralph Sloan for the Food and Nutrition Board with the consultation of the Committee on Maternal and Child Feeding. The publication is a compilation of the comparative composition and properties of human, cow, and goat milk, colostrum, and transitional milk.

FAO Booklets. Two recent booklets published by FAO will be of interest to dietitians and nutritionists. The first, *Calorie Requirements*, is a report of the Committee on Calorie Requirements and is listed as FAO Nutritional Studies No. 5. The method adopted by the Committee in assessing calorie requirements was that of exterpolation from the requirement of a reference individual, who is described. Various aspects of the problem, such as state of health, presence of disease, nutritional rehabilitation, character of the diet, and race are discussed, as well as specific factors which influence calorie requirements, i.e., body size, age, environmental conditions, and activity. The way in which the reference requirements can be adjusted in calculating the requirements of people who differ from the reference is explained. It is emphasized that the requirement figures given and the quantitative system of adjustment recommended are provisional and tentative. The price of this booklet is 75 cents.

Teaching Better Nutrition by Jean Ritchie is FAO Nutrition Study No. 6. It is subtitled "A Study of Approaches and Techniques" and includes examples of questionnaires, training curricula (summarized), and various types of teaching aids. The first part of the study emphasizes the cultural and nutritional aspects of food habits and outlines methods of surveying existing conditions as a basis for a program in nutrition education. It is explained that an educational program is concerned with production, consumption, purchase, preservation, and preparation of food, and outlines for national programs for developed and underdeveloped countries are suggested. A third section deals with the training of nutrition workers. Ways of integrating various techniques and methods are discussed. The last three parts of the booklet deal with teaching materials, the evaluation of methods and materials, and examples of various types of programs in different parts of the world.

Nutrition Monograph Series. The first two books of a new Nutrition Monograph Series have been prepared in paper bound volumes by the National Vitamin Foundation, Inc. *Nutrition in Ophtal-*

This is number three of a series of three announcements of nutrition research.

Keeping up with Nutrition Research

Studies now available on the use of fat in intravenous feeding

RECENTLY, a group of scientists made extensive studies with animals to explore this important phase of intravenous nutrition. Their work, published a short time ago, discloses that finely emulsified solutions of oils—butter oil among them—were tested on experimental animals.*

Actual clinical trials are just beginning, but there is recorded evidence that fat emulsions may be given safely to human subjects.**

Should this dramatic new application of fats be perfected, it would prove an invaluable aid in counteracting a calorie deficiency in the patient who is unable to take food by mouth. Certainly, it would fulfill an urgent need for a method of supplementing caloric intake in many pre- and post-operative cases.

*Stare, F. J., Mann, G. V., Geyer, R. P. and Watkin, D. M. *The need of fat in intravenous feeding*, J. Am. Oil Chem. Soc. *26*:145 (April) 1949.

**Mann, G. V., Geyer, R. P., Watkin, D. M. and Stare, F. J. *Parenteral nutrition IX. Fat emulsions for intravenous nutrition in man.* J. Lab. Clin. Med. *34*:699 (May) 1949.

National DAIRY COUNCIL

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Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.

mology (Number 1) is a 137-page book by John J. Stern, M.D. It sells for $1.50. Number 2 in the series, *Currents in Nutrition*, consists of the proceedings of a Nutrition Symposium held at the University of Illinois College of Medicine on November 19, 1949. It contains reports by Bertha Burke, William J. Darby, L. Emmett Holt, Jr., M. K. Horwitt, Ancel Keys, Carl V. Moore, James M. Strang and R. W. Vilter. The price of this 128-page volume is $1.

New BHNHE Publications. Four new publications of the Bureau of Human Nutrition and Home Economics, U.S.D.A., are:

Part I of *Recipes for Quantity Service* is a twenty-three-page booklet with recipes for curried pork chops, pork soufflé, turkey loaf, turkey mushroom scallop, Mexican potato balls, turkey salad, apple soufflé, baked appled pudding, baked peach dumplings, and spice cake. Equivalent weights and measures are given for 25-, 50-, and 100-portion yields.

A four-page folder on "Improved Bread Formulas for School Lunch, Institutional, and Hospital Use" presents five formulas for white, soy-wheat germ, soy, raisin, and whole-wheat bread given in terms of parts by weight. The formulas use enriched white flour along with six to ten parts by weight of nonfat dry milk, resulting in breads with higher nutritive value than those commonly used for the retail trade.

School Lunch Receipes Using Cheese presents fourteen cheese recipes, together with general information on using cheese. A number suggest the use of nonfat dry milk and dried whole eggs, and directions for using these products are included.

A June release was *Flavor, Texture, Color, and Ascorbic Acid Content of Home-Dehydrated Vegetables and Fruits* by Elsie H. Dawson, Esther L. Batchelder, and R. Katherine Taube. It is listed as Technical Bulletin No. 997 and is available from the Superintendent of Documents at a cost of 20 cents a copy.

City Families' Choices of Fruits. Oranges are the most popular of fresh fruits eaten by city families in the spring, according to the survey made in sixty-eight cities by the Bureau of Human Nutrition and Home Economics. Bananas and then apples follow as second and third choices. Urban families used three times as many peaches as any other canned fruit. The quantity of citrus fruit eaten by these families has remained stable since 1942; however, their use of other fresh fruits—bananas, apples, berries, and melons—has increased 40 per cent, and much of the increase has been in low-income families. Although more canned fruit is being eaten than in 1942, families are consuming only about two-thirds as much dried fruit—a decrease shown mainly among low-income families. The survey showed that families in the $5000–$7000 income group spend 85 per cent more for fresh fruit, including citrus, than those in the $1000–$2000 bracket.

Symposium on Dental Papers. *Sugar and Dental Caries* is the title of a record of papers by authorities and a panel discussion held during the eightieth annual meeting of the California State Dental Association. It is published as a ninety-five-page supplement of the *Journal of the California State Dental Association*.

Milbank Memorial Fund Publications. The 1948 Conference of the Milbank Memorial Fund has resulted in the publication of two paper-bound books—*Problems in the Collection and Comparability of International Statistics* and *The Family as the Unit of Health*. Each volume is available for 50 cents.

N.Y. State Trains Food Workers in Mental Health Program. More than three hundred cooks from twenty-seven institutions have received diplomas at the food service training school established in 1948 at the Hudson River State Hospital. The school is a part of the training program for workers in the state's mental institutions, conducted by the State Department of Mental Hygiene. In addition, special courses under the food training program have been attended by twenty-five food service managers, nineteen dietitians, and twenty-seven business managers.

Staffing the Small Hospital. *A Study of Staffing the Small General Hospital—Less than 100 Beds* is a report prepared by Margaret K. Schafer, Nurse Consultant,

Ready to Serve

IN 3 to 5 MINUTES

. . . BERNARD'S 22 FINE SOUPS FOR REGULAR AND SPECIAL DIETS

The simmering goodness of choicest meats and garden-fresh vegetables are concentrated in our soup bases for your convenience. Our bases for low sodium diets are identical to others, except that no salt is added. You can conveniently mix large batches at one time, add your own salt *after* special diets are served, and serve regular diets the same delicious soup *with* seasoning.

EASY TO PREPARE — DELICIOUS — ECONOMICAL

Jellied Consomme Powder	Chicken Soup Base
French Onion Soup	Beef Soup Base
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Pea and Ham Soup	Consomme Powder
Cream of Mushroom Soup	Jellied Consomme Powder
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(Above soups available for low sodium diets or for regular diets, as ordered)

Beef and Rice Soup Mix	Bouillon and Rice Soup Mix
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We also have a complete line of puddings, gelatins, and other desserts for sugar-restricted diets.
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TABLEWARE WITH THE "PROLON GLAZE"

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TESTED AND APPROVED by such organizations as Duke University and The Cooley Dickinson Hospital; currently being extensively tested at The Johns Hopkins Hospital. LEFT: Duke University Dining Hall, where Prolon Ware is used. RIGHT: Prolon Ware tray setting as used at The Cooley Dickinson Hospital.

Before you make another tableware purchase, you owe it to yourself to examine this radically improved development in plasticware. Seventeen items in four pastel colors.

You'll find Prolon Ware exactly right for your needs. Designed right. Right weight, right thickness, right colors. And, Prolon Ware is priced right too.

New Prolon Ware's "Prolon Glaze" is the result of over 100 years' experience in molding plastics. Because it lasts so long, Prolon Ware pays for itself again and again. For complete details write to Parker D. Perry, Incorporated, National Distributor.

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U.S. Public Health Service. The data, collected in 1948 from twenty-two general hospitals with less than one hundred beds, includes number, per cent, and distribution of personnel. It is reported that in the twenty-two hospitals, 13.3 per cent of the total hospital personnel was employed by the dietary department. Fourteen of these hospitals employed dietitians, and all but two of those with more than fifty beds had staff dietitians. In the hospitals without a dietitian, the hospital administrator or the director of nurses supervised the purchase and preparation of food. The average ratio of dietary personnel to patients is reported as 1:5.4, excluding newborn.

Report on Value of Milk. A bulletin, *Nonfat Dry Milk Solids, Dry Whole Milk —Food for Children*, reporting the work of Dr. Tom D. Spies, Northwestern University nutritionist, has been published by the American Dry Milk Institute, Inc. It was prepared to demonstrate the value of milk in promoting growth and development of children, as experienced at Hilman Hospital, Birmingham. A dietary supplement of dry whole milk or nonfat dry milk solids was given to forty-one undernourished children for twenty months. Results showed improvement in speed of development in 54 per cent of the children, and 73 per cent improved in the rate of growth. Teachers found once fidgety children quieter, more interested in their studies, better tempered, and disciplined, while listless children became more friendly and energetic.

More Niacin This Year. The U.S.D.A. has predicted that U.S. diets will provide more niacin and less ascorbic acid this year than last. Weather damage to citrus crops is blamed for the decreased consumption of ascorbic acid —98 per cent of last year's supply. The increase in niacin—103 per cent of last year—is attributed to greater use of dry edible beans and potatoes. The major nutrients in civilian consumption are estimated to range from 9 to 14 per cent below the peak years of 1945 and 1946. The 1950 consumption of nutrients in percentages as compared with the 1935-39 average is: food energy, 100; protein, 106; fat, 109; carbohydrate, 93; calcium, 112; iron, 121; vitamin A value, 106; thamine, 133; riboflavin, 125; niacin, 127; and ascorbic acid, 104.

Tooth Decay More Prevalent in Girls. More dental caries in girls than boys of college and teen age has been reported by the Oregon Experiment Station. The explanation given is that girls' teeth erupt at an earlier age and are thus subjected to conditions of decay for a longer time. The studies indicated that girls take better care of their teeth, since they need fewer extractions. In another Oregon study, tooth decay was found to be lower among children who had optimum diets and a restricted intake of sweets.

Vitamin A and Ascorbic Acid in Yams and Collards. Recent tests at the North Carolina Experiment Station have shown that both sweet potatoes and collards are rich in vitamin A value and ascorbic acid. An average serving of sweet potatoes supplies more vitamin A than the Recommended Daily Allowance and 60 per cent of the ascorbic acid. Previous tests showed that sweet potatoes lose few vitamins during curing and storing and hold almost all of their natural ascorbic acid during baking.

Collards, also popular in the South, rate high in both vitamin A and ascorbic acid. However, when cooked in too much water, they lose much of their ascorbic acid.

Tropical Fruit Rich in Ascorbic Acid. The West Indian cherry, which grows wild in Puerto Rico and other tropical regions of America, is reported by the Puerto Rico Experiment Station to be one of the richest of all fruits in ascorbic acid. The cherry-like berry, which has five or six small seeds, grows abundantly on trees that thrive on poor soil and resists most diseases caused by insects. Scientists suggest that one part of cherry juice added to nine parts of low-ascorbic-acid juices makes a pleasant blend that has more of the vitamin than the average orange juice. They also suggest that the cherry juice could be used to produce crystalline ascorbic acid very economically.

Cooking Chicken. A booklet and leaflet on methods of cooking chicken have

Safe, Effective Calorie Control in

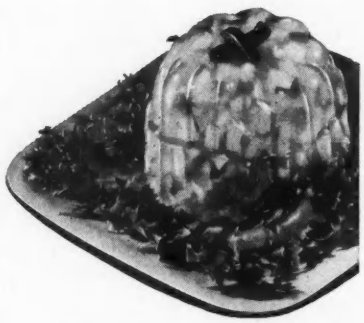
REDUCING DIETS

MANY so-called reducing diets are deficient in protein. Such diets, of course, may cause damage to essential body tissues.

As a dietary adjunct in reduction of obesity caused by overeating, Knox Unflavored Gelatine, a recognized supplementary protein, has been found by many physicians to be an effective safeguard against protein starvation, in reducing diets.

Knox Gelatine is used as an ingredient in salads, main dishes and desserts that are high in residue, low in calories and extremely appetizing and nourishing. Knox is also widely recommended in between-meal drinks, dissolved in water or diluted fruit juices, to provide protein without extra calories.

Knox Gelatine is all protein, with no sugar content—unlike factory-flavored gelatin powders with their high acid and sugar content. It provides good protein with no extra calories. It is made to U.S.P. standards. Write Knox Gelatine, Dept. M-15 Johnstown, New York.



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FREE DIETARY GUIDE BOOK FOR OBESE PATIENTS

This is a 32-page booklet containing 56 low-calorie recipes and menus, scientific calorie and other food-value charts, and authoritative dietary suggestions. A supply of these booklets is available to you, free, on request.

TO A FLAVORFUL BREW...
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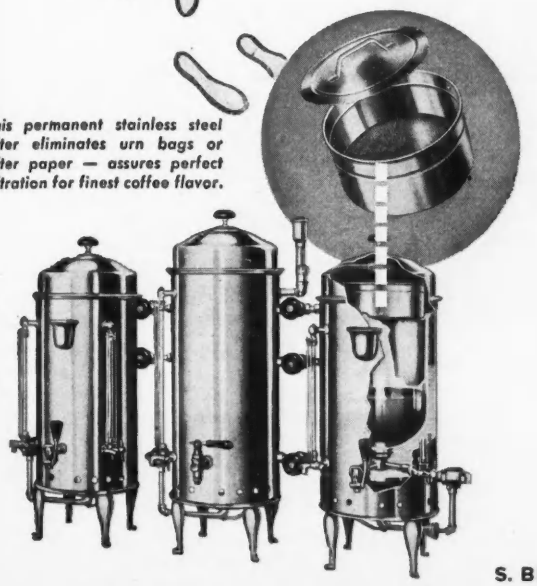
Here is your solution to the problem of making perfect coffee. The permanent stainless steel Tri-Saver filter extracts full flavor from the coffee you use. Tri-Saver filter's coffee-friendly stainless steel surfaces do not absorb essential flavoring matter—every ounce of goodness passes through the filter. No more spoiled batches due to torn filter paper or rancid urn bags. For that consistently clear, delicious brew — all evidence points to Tri-Saver, America's finest coffee urns.



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been prepared by the Poultry and Egg National Board. The fifteen-page booklet, "How to Cook Chicken," is a commentary for a color film strip. An introduction explains that cooking chicken is based on two principles—cooking by dry heat and by moist heat, which includes stewing, braising, roasting, frying, broiling, and barbecuing. Detailed instructions and illustrations are given throughout to show the actual cooking processes. The leaflet, which has several illustrations, explains the same standard methods of preparing chicken and also includes several additional recipes.

Income and Food Habits. *Food for Four Income Levels* by Ruth Okey and Mary Gorringe Luck has been issued by the Heller Committee for Research in Social Economics at the University of California. The food allowances were drawn up for families of an executive, a white-collar worker, a wage earner, and for dependent families or children. Budgets were priced in San Francisco. The allowances provide a nutritionally adequate and balanced diet with consideration for customary food habits of the various groups in the study. It was assumed that the executive and white-collar worker are engaged in a sedentary occupation and the wage earner in manual labor, and that the junior high school student in the executive's family buys his lunch at school, but that all other children of junior and senior high school age carry box lunches supplemented by ½ pt. milk bought at school. The forty-eight-page booklet sells for $1.

Fruit Juice and Honey Spread. A new fruit spread of fruit juice and honey that can be kept without refrigeration has been developed at the U.S.D.A. Eastern Regional Laboratory in Philadelphia.

Fruits give the spread flavor and color, and honey adds sweetness, creamy consistency, and good keeping quality. A variety of fruits have been used, including: frozen strawberry and red raspberry purées; juice from the frozen berries; fresh peach purée; bottled grape juice; canned pineapple and loganberry juices; peach and apricot "nectars"; cherry purée; frozen orange juice concentrate; and grape juice concentrate with natural flavor essence.

Frozen Strawberry Purée or Juice. Firm, uniformly ripe strawberries with a slight tart flavor make the best frozen products, according to U.S.D.A. specialists. Medium-size berries that have been sliced and crushed make especially good products. Although whole frozen strawberries have good flavor, they may be soft after thawing. Sirup for strawberries can be made by dissolving 4¾ cups sugar in each quart of water. The cold sirup is poured over the berries after they are packed in containers, leaving a head space of ¾ in. in a pint container and 1 in. in quart containers with wide top openings. In quart mason jars, a head space of 1½ in. should be left. The container is sealed and then put into the freezer.

For a sugar pack—which is recommended for sliced or crushed berries and which can be used on whole berries—1 cup sugar is added to each 1½ qt. berries (2 lb.) and mixed thoroughly. They are packed with the same amount of head space as when frozen with sirup.

Strawberry purée is prepared for freezing in the same manner, except that berries are pressed through a sieve after hulls are removed. They should be packed with 1 cup sugar to every 1½ qt. (3 lb.) purée, and they should be mixed well before packing in containers.

Freezing strawberry juice is a good way to use berries too small or soft for freezing otherwise. Fully ripe berries are best. After removing hulls, berries should be crushed and put through a cheesecloth or bag to extract the juice. They can be sweetened to taste and packed in the usual manner.

Keeping Dry Bread Mixes. The Bureau of Human Nutrition and Home Economics has found that quick bread mixes made with nonfat dry milk can be kept well for six months in tightly covered containers at room temperature —70° to 75°F. Precautions should be taken to see that the fat does not need to be refrigerated. Meat drippings, for instance, are not suitable for mixes kept on the shelf.

Freezing Sweet Cherries. Firm-fleshed cherries, including Schmidt, Lambert, and Bing cherries, are recommended for freezing, according to Dr. Frank A. Lee of the New York

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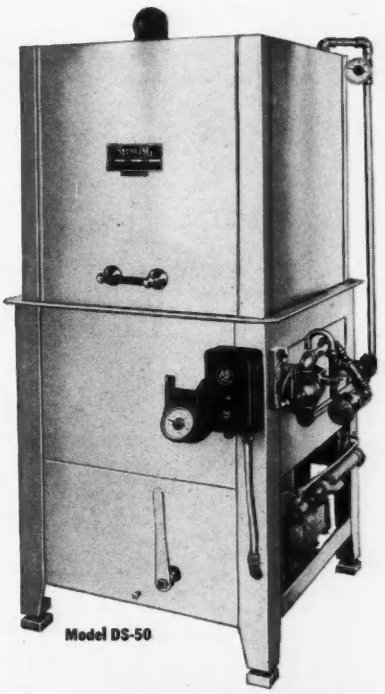

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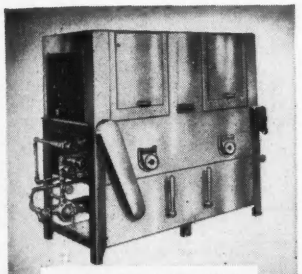

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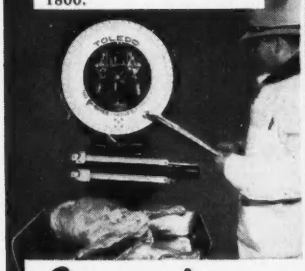

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State Experiment Station. He rates Victor and Napoleon (Royal Ann) as "quite satisfactory." After cherries are stemmed, washed, and drained, they are packed into cartons and covered with sirup of desired sweetness. Dr. Lee suggests adding ascorbic acid powder. For 8 pt. packed cherries, he recommends 1.6 gm. powder dissolved in ⅛ cup water before mixing into the sirup. Not more than 20 to 25 pt. should be put in a 29-cu.-ft. freezer at a time. For fast freezing, these should be arranged with air space between the boxes, and with one side of each box against the bottom of the side wall of the cabinet. Ten to 12 hr. should be allowed for freezing. After cherries are frozen, boxes can be packed tightly for storage in the freezer.

Freezing Rhubarb. According to the New York State Experiment Station, freezing is a much better way to preserve rhubarb than storage by uncooked canning, in which the stalks are cut in pieces, placed in fruit jars, filled with water, covered, and stored. After washing and cutting the stalks into inch pieces, one lot was cut, put in cartons, and frozen. Another lot was scalded in boiling water 1½ min., cooled, packaged, and frozen. A third lot was scalded, then covered with sirup before packaging and freezing. After six months at 0°F., the uncooked lots were cooked, and the precooked frozen rhubarb was thawed. Judges agreed that all frozen samples were superior to the uncooked canned rhubarb in palatability. The New York agriculturists say rhubarb, because of its acidity, is one of the few vegetables that can be frozen satisfactorily without being treated by heat.

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News of State Associations

Colorado Dietetic Association. The public relations work of the Colorado Dietetic Association during the year included radio broadcasts on nutrition and budgeting, field trips to hospitals, articles about the Association in newspapers, and teas to welcome new members and meet college students.

At the Colorado Association's spring meeting in Denver, the following were elected as new officers for the coming year: President-Elect, Inez Stocking, and Treasurer, Josephine Faunce.

Idaho Dietetic Association. The spring meeting of the Idaho Dietetic Association convened June 24 at Payette Lakes, McCall. Speakers and their topics were:

"The Problems of School Lunchrooms" by Irene Ellis, Lewiston Public Schools, Lewiston

"Employee Training" by Marian Dykman, Mercy Hospital, Nampa

"Personal Experiences from Germany to the United States via China" by Dr. Vallee Udick, Dentist

"'Recent Trends in Therapeutic Diets" by Martha Taft, VA Hospital, Boise

"The Idaho Recruitment Program" by Margaret Ritchie, Home Economics Department, University of Idaho, Moscow

Iowa Dietetic Association. In the July JOURNAL, officers for this year were incorrectly listed as being elected for the coming year. The correct officers for 1950–51 are: President, Helen Goodenow, Currier Hall, Iowa City; President-Elect, Mary June Carter, Children's Hospital, Iowa City; and Secretary, Evelyn Brandt, University Hospitals, Iowa City.

Oregon Dietetic Association. A workshop meeting was held in February in Salem as a project of the Food Administration Section, with the purpose of helping members to analyze their dietetic responsibilities. Discussion groups were held after each of the following talks:

"Better Cost Control" by Dorothy Steen, Dietitian, Emanuel Hospital

"Good Standards for Food Production" by Sylvia Matson, Reed College

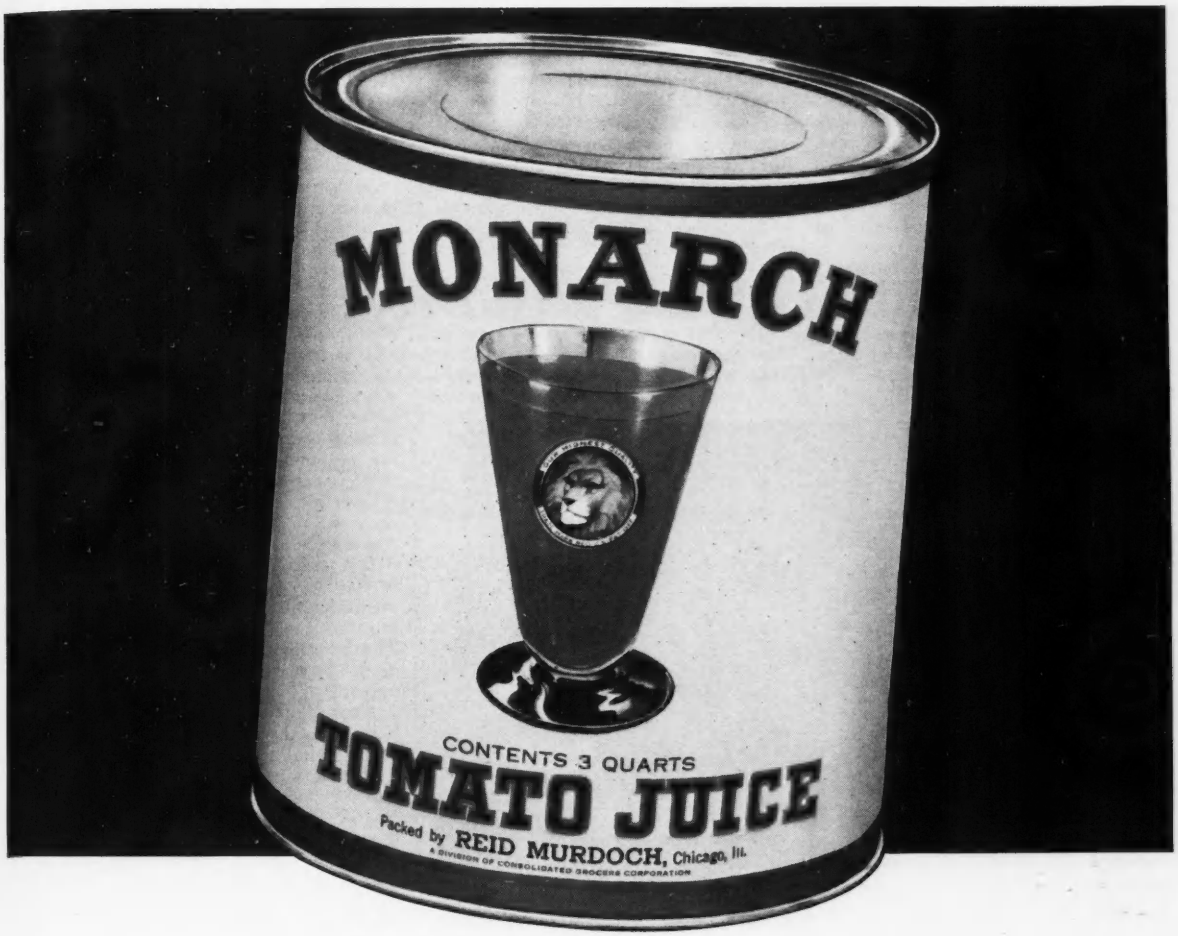
"Good Personnel Management" by Buena Council, VA Hospital

"Better Equipment Control" by Betty Jane Bolton, Salem General Hospital, Salem

Association Activities

Report from the President

The *Association Activities* column in this JOURNAL and the *Courier*, which is mailed to some 700 members, have kept you informed of the major work of the Association. With the state bulletins reproducing pertinent information from the *Courier*, you are aware, I am sure,



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of the accomplishments throughout the year from one annual meeting to the following one.

In February the first meeting of the newly established Coordinating Cabinet was held. With the present membership of 8564, as of the end of the fiscal year, the increased representation provided by the Cabinet has significantly strengthened the year's program by providing a broader view of the members' interests and problems.

Members of the Executive Board, as previously reported in this section, attended many meetings held this year in the headquarters office: those of the Public Relations, Vocational Guidance, and Educational Exhibits Chairmen; the Program Advisory Planning Committee; and the Finance Committee. Also, three Executive Board sessions have been held.

Another meeting which deserves special mention was that of representatives of the American Hospital Association and A.D.A., held on June 28, to review the program of each association, to talk over mutual problems, and to decide where the work should be strengthened to meet the greatest need.

Dr. Coover in her last issue of the *Courier* related the report of the hospital survey which I am repeating, for it deserves serious thought on the part of each member.

The 1949 survey of hospitals by the American Hospital Association indicated that of the 5318 reporting hospitals, 2331 employed 4943 dietitians. More than 3000 hospitals had no dietitians. In summary, there were not enough dietitians working in hospitals to provide one for each hospital. Three out of five hospitals in all categories had no qualified dietitians; eleven of twelve general and special short-term hospitals of fewer than fifty beds had no qualified dietitians.

An examination of these figures indicates:

(a) Even if the present number of dietitians trained were tripled, one dietitian would not be available for each hospital.

(b) The study removes all possible doubt about the shortage of dietitians and the unequal distribution of those available.

(c) The study indicates the need for better distribution of dietitians in view of the shortage and the need for developing personnel to assist in the dietary department of hospitals.

This year some major changes have occurred in the administration of the Association's operations. The selling of A.D.A. exhibit space and the handling of convention arrangements relative to exhibits are now under the direction of our Business Manager, Mildred Egeberg. The direction of the public relations program was centralized in the office by the appointment of Thelma Pollen. Margaret L. Ross, Professional Activities Director, has shared the responsibility of the program planning of the Annual Meeting with Adelia Beeuwkes, Chairman of the Program Advisory Planning Committee. Harriet E. Sankey, Managing Editor, and Mary Ellen Johnson, Assistant to the Educational Director, have also assumed added responsibilities. A close working relationship between the Executive Board and our staff has developed a better understanding of routine operations, current problems, and the needs of our Association.

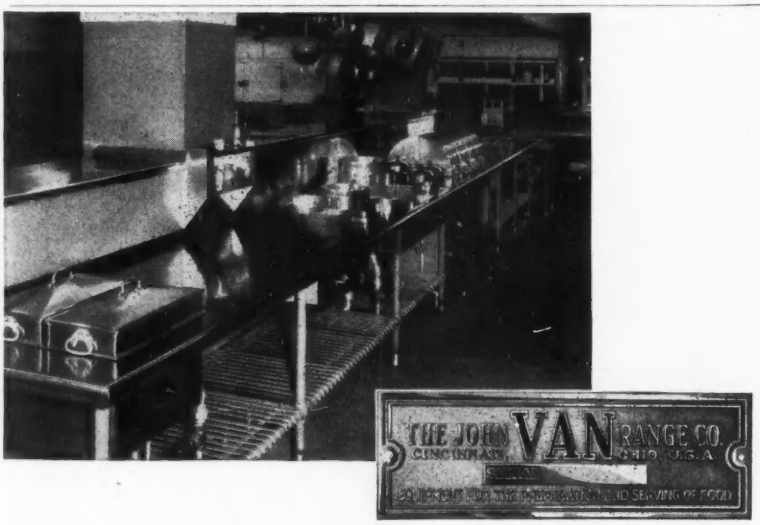
If time and space permitted, I would continue telling of the outstanding work done by many of our members who are taking a part in the activities of our many Boards, standing committees, and special committees. In addition, other members are working on section projects for the Association.

We may be justly proud of the activity of our profession: our participation in work with allied professions, and in such meetings as those of the Midcentury White House Conference on Children and Youth, the Conference on FAO for Non-Governmental Groups, and the American Association for the Advancement of Science; and in our representation at functions of allied associations on both the national and local level.

I am looking forward to seeing you in Washington.—*Elizabeth Perry, President, The American Dietetic Association.*

Our Representatives. At the invitation of the Illinois State Medical Society, our Executive Secretary, Ruth Yakel, attended the Ninth Annual Institute of the Friends of the Land, which was held in Chicago on July 6 and 7.

The Film Council of America invited A.D.A. to send representatives to its annual meeting in Chicago on July 30.



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1. Dunn, M. S. "The Nutritional Value of Fish Proteins." (Institute of Food Technologists, San Francisco meeting, July, 1949.)

   Geiger, E. "Nutritive Value of Fish Protein" (in "Progress of the Chemistry of Organic Natural Products" Ed. by L. Zechmeister, 5 275 [1948]).
2. Wetzel, N. C., W. C. Fargo, J. H. Smith and J. Helikson — "Growth Failure in School Children as Associated with Vitamin B_{12} Deficiency-Response to Oral Therapy." (Science, 110, 651 [1949].)
3. Editorial, "The Lancet" (London) Oct. 8, 1949, Page 664.
   McClure, F. J., "Fluorine in Foods," Public Health Reports, 64 1061 (1949).

Further information will be gladly supplied upon request.

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Thelma Pollen, our Public Relations Director, and Miss Yakel acted in this capacity. The Film Council met along with other similar groups as part of the Midcentury National Audio-Visual Convention, July 28 to August 2. Mrs. Pollen was able to make some valuable contacts for the Association.

As President of A.D.A., Elizabeth Perry has been asked to serve on the 1950 National Advisory Committee of the International Dairy Exposition to be held in Indianapolis in October. The purpose of the committee is to guide and advise the Exposition in forming a successful and constructive program dedicated to the future of the nation's youth.

Margaret L. Ross and Miss Yakel attended the inaugural of the first U.S. International Trade Fair which opened in Chicago on August 8.

A.H.A. Convention. The Kodachrome exhibit, "Dietetics, The Career with a Choice," will be shown at the annual meeting of the American Hospital Association, September 18 to 21 in Atlantic City. Members of the New Jersey Dietetic Association will take charge of the booth. In addition, the A.D.A. will send an official representative.

Tellers Committee in Action. The Tellers Committee—Judith Judd, Chairman, Marie Matte, and Audrey Stoughton—was very active during August counting ballots from the annual election of A.D.A. officers. Working evenings in the Association office, the committee was ably assisted by members of the Chicago Dietetic Association.

Publicity for the Profession. A factual article on the profession of dietetics was requested several months ago by the editors of *Occupational Trends*, a vocational guidance magazine issued by the Bellman Publishing Company, Boston. Consequently, the writing of such an article was one of the first major duties of our new Public Relations Director, Thelma Pollen. Word has been received that the article will appear in the September–October issue. Several photographs, supplied by A.D.A., will be used to illustrate the article.

New A.D.A. Bibliographies. In August, a revised *Nutrition Bibliography*, compiled by the Community Nutrition Section of A.D.A., became available in mimeographed form. It is divided into eight parts, each being printed on a different color of paper. The sections are titled: Nutrition in Pregnancy and Lactation, Nutrition and the Preschool Child, Nutrition and the School Child, Nutrition and the Family, Nutrition in the Community, Nutrition in Industry, Sources of Films and Film Lists, and Consultation to Institutions. Copies may be obtained from the A.D.A. office for a price of 50 cents.

A second bibliographical addition to the A.D.A. publications is a supplementary list of references on low-sodium diets. It may also be obtained from the A.D.A. office.

News of Advertisers and Exhibitors

General Foods Corporation has a new Director of Consumer Service. She is Ellen-Ann Dunham, who had served as Manager of the General Foods Consumer Kitchens, Product Representative, and Assistant Director and Manager of Consumer Service before her promotion in June. She is taking Marie Sellers' place, who for twenty-four years before her retirement had helped in the development of the company's Consumer Service Department.

A new *General Foods* publication of interest is a booklet on cake making at high altitudes, which includes variations for 3000, 5000, and 7000 ft. It can be obtained from the Consumer Service Department.

Procter and Gamble Research Kitchens have recently released an eight-page bulletin on "The Art of Preparing French Fried Potatoes." The contents includes the following topics: how to select potatoes, proper storage of potatoes, preparation of the potato pieces, choice of the right frying fat, proper frying techniques, care of frying fat and equipment, serving the potatoes, and the art of preparing Julienne or shoestring potatoes. The bulletin is printed in two colors, and photographs illustrate each topic.

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